



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

U. S. NAVAL OBSERVATORY

DETERMINATION
OF THE
DIFFERENCE OF LONGITUDE BETWEEN
WASHINGTON AND PARIS

1913-1914

APPENDIX TO PUBLICATIONS OF THE U. S. NAVAL
OBSERVATORY, SECOND SERIES, VOL. IX

Astr 1609. 16 F



Harvard College Library

FROM

Prof. W. F. Osgood
Cambridge

SCIENCE CENTER LIBRARY



OBSERVING HOUSES AT WASHINGTON.

REPRINT OF PUBLICATIONS OF THE UNITED STATES NAVAL OBSERVATORY
SECOND SERIES, VOLUME IX—APPENDIX

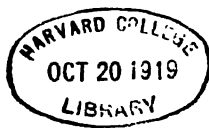
0

DETERMINATION
OF THE
DIFFERENCE OF LONGITUDE BETWEEN
WASHINGTON AND PARIS

1913-1914



WASHINGTON
GOVERNMENT PRINTING OFFICE
1916



U. S. NAVAL OBSERVATORY.

Captain J. A. HOOGWERFF, *U. S. N.*, *Superintendent.*

ASTRONOMICAL COUNCIL.

Captain J. A. HOOGWERFF, *U. S. N.*
Commander W. D. MACDOUGALL, *U. S. N.*
Prof. W. S. EICHELBERGER, *U. S. N.*
Prof. F. B. LITTELL, *U. S. N.*

Prof. A. HALL, *U. S. N.*
Assistant Astronomer G. A. HILL.
Assistant Astronomer J. C. HAMMOND.
Assistant Astronomer H. R. MORGAN.

DEPARTMENT OF ASTRONOMICAL OBSERVATIONS.

REDUCTION OF NINE-INCH TRANSIT CIRCLE OBSERVATIONS, 1903-1911.

Prof. WILLIAM S. EICHELBERGER, *U. S. N.*, *in charge.*

DIVISION OF PHOTOGRAPHIC ZENITH TUBE AND ALT-AZIMUTH.

Prof. FRANK B. LITTELL, *U. S. N.*, *in charge.*

Assistant Astronomer GEORGE A. HILL.

DIVISION OF EQUATORIALS.

Prof. ABAPH HALL, *U. S. N.*, *in charge.*

ASSISTANTS.

GEORGE H. PETERS. HARRY E. BURTON. ERNEST CLARE BOWER.

DIVISION OF PRIME VERTICAL TRANSIT INSTRUMENT.

Assistant Astronomer GEORGE A. HILL, *in charge.*

DIVISION OF SIX-INCH TRANSIT CIRCLE.

Assistant Astronomer JOHN C. HAMMOND, *in charge.*

ASSISTANTS.

MATT FREDERICKSON. CHARLES CLAYTON WYLIE.

DIVISION OF NINE-INCH TRANSIT CIRCLE.

Assistant Astronomer HERBERT R. MORGAN, *in charge.*

ASSISTANTS.

JESSE PAWLING. LEROY P. STEELE.

MISCELLANEOUS COMPUTER.

PAUL SOLLENBERGER.

DIVISION OF REDUCTION OF OBSERVATIONS.

EXECUTIVE COMMITTEE, *in charge.*

ASSISTANT.

ELEANOR A. LAMSON.

MISCELLANEOUS COMPUTERS.

CHESTER B. WATTS. SAMUEL GOLDSTEIN. WILLIAM A. CONRAD.
ROBERT R. CANDOR.

February, 1916.

**APPENDIX TO PUBLICATIONS OF THE U. S. NAVAL OBSERVATORY,
SECOND SERIES, VOL. IX (Reprint).**

ERRATA.

Page E 8, line 9: For 3,830, read 3,840.

Page E 16, under "Duration of Contacts," line 5: For contract, read contact.

Page E 91, footnote, line 5: For l'Acadámie, read l'Académie.

Page E 97, footnote, line 6: For d l'Académie, read de l'Académie.

For February 14, read June 13.

Page E 97, footnote, line 8: For 36°.53, read 36°.532.

For 36°.75, read 36°.720.

For 36°.67, read 36°.651.

Page E 97, footnote, add: From photographic work I, 5 17 36.664.

II, 5 17 36.700.

All, 5 17 36.682.

Astr 1609.16F

—

P R E F A C E.

The proposal to determine directly the difference of longitude between Washington and Paris by means of radio signals was made in 1912 by Capt. J. L. Jayne, U. S. N., then superintendent of the U. S. Naval Observatory, and the work was made possible by the cordial cooperation of the Navy Department, the superintendent of the Naval Radio Service, the U. S. Naval Attaché at Paris, and officials of the French Government.

J. A. HOOGWERFF,
Captain, U. S. N., Superintendent.

FEBRUARY, 1916.

APPENDIX.

DETERMINATION
OF THE
DIFFERENCE OF LONGITUDE
BETWEEN
WASHINGTON AND PARIS
1913-1914.

REDUCED UNDER THE DIRECTION OF
F. B. LITTELL AND G. A. HILL.

TABLE OF CONTENTS.

	Page.
DETERMINATION OF THE DIFFERENCE OF LONGITUDE BETWEEN WASHINGTON AND PARIS.....	E 7
Preliminary Longitude Work.....	E 7
Preparations for the Definitive Longitude Work.....	E 8
The Astronomical Program.....	E 10
The Right Ascension Micrometer Screws.....	E 10
The Levels.....	E 11
The Clocks and the Lags of the Relays.....	E 11
Duration of Contacts.....	E 16
The Azimuths of the Meridian Marks.....	E 18
The Clock Corrections.....	E 20
The Radio Equipment.....	E 75
The Program and Methods of the Radio Work.....	E 75
The Results of the Radio Observations.....	E 80
The Transmission Time.....	E 89
The Washington-Paris Longitude.....	E 91
Systematic Differences between Results for the Two Periods.....	E 98
Previous Determinations of Trans-Atlantic Longitudes.....	E 98
The Washington-Greenwich Longitude.....	E 99
Longitude Determinations by American Observatories.....	E 100

LIST OF PLATES.

	Facing page.
PLATE I. Observing Houses at Washington.....	Frontispiece.
PLATE II. Transit Instrument made by G. Prin, Paris.....	E 9
PLATE III. Right Ascension Micrometer of Transit Instrument.....	E 10
PLATE IV. Motor, Speed Change and Control of Right Ascension Micrometer.....	E 12
PLATE V. Radio Station, Radio, Virginia.....	E 74
	E 5

DETERMINATION OF THE DIFFERENCE OF LONGITUDE BETWEEN WASHINGTON AND PARIS.

The first proposal to determine the difference of longitude between the United States Naval Observatory and the Paris Observatory by the use of radio signals from the naval radio station at Radio, Va., and from the Eiffel Tower radio station in Paris was made by Capt. J. L. JAYNE, United States Navy, in the following letter addressed to the Navy Department:

UNITED STATES NAVAL OBSERVATORY,
Washington, D. C., September 25, 1912.

From: Superintendent.

To: Navy Department (via Bureau of Navigation).

Subject: Direct determination of difference of longitude between United States Naval Observatory, Washington, D. C., and the Paris Observatory by means of radio telegraphy.

1. Previous to 1866 the important matter of differences of longitude between American and European stations depended upon observations of moon culminations, occultations, and chronometric expeditions. After the laying of the telegraph cable under the Atlantic Ocean, the longitude determinations were made by means of its use. Four such determinations have been made, three by the United States Coast and Geodetic Survey, in 1866, 1870, and 1872, between Cambridge, Mass., and Greenwich, England, and one by the cooperation of Canadian and English astronomers between Montreal, Canada, and Greenwich, England. In each case there were several intermediate stations.

2. The longitude of the United States Naval Observatory referred to Greenwich or Paris has never been directly determined, and is known only through connections with the above mentioned determinations of trans-Atlantic longitudes.

3. In view of the fact that the radio station at Arlington will soon be in operation, probably affording direct communication with the Eiffel Tower station at Paris, I consider it a matter of importance that the opportunity should be utilized at the earliest possible time to secure a direct determination of the difference of longitude between the national observatories at Washington and Paris. This will be the first time that such a direct determination without intermediate stations will be possible, and this will be one of the most important uses, scientifically, to which the radio signals can be applied.

4. It is recommended that the representative of the Navy Department at the conference on radio time signals to be held in Paris October 15, 1912, be directed to confer with the authorities of the Paris Observatory with the view of entering into a plan for the determination of the difference of longitude between the Paris and Washington observatories, at as early a date as is practicable.

J. L. JAYNE.

PRELIMINARY LONGITUDE WORK.

A translation of this letter was read by Commander H. H. HOUGH, United States Navy, at one of the meetings of the Conférence Internationale de l'Heure held at Paris in October, 1912. The United States was represented at this Conférence by Commander HOUGH and Prof. ASAPH HALL, United States Navy. The proposal to determine the difference of longitude between the two observatories by radio signals was presented by Commander HOUGH to the Bureau des Longitudes and to the

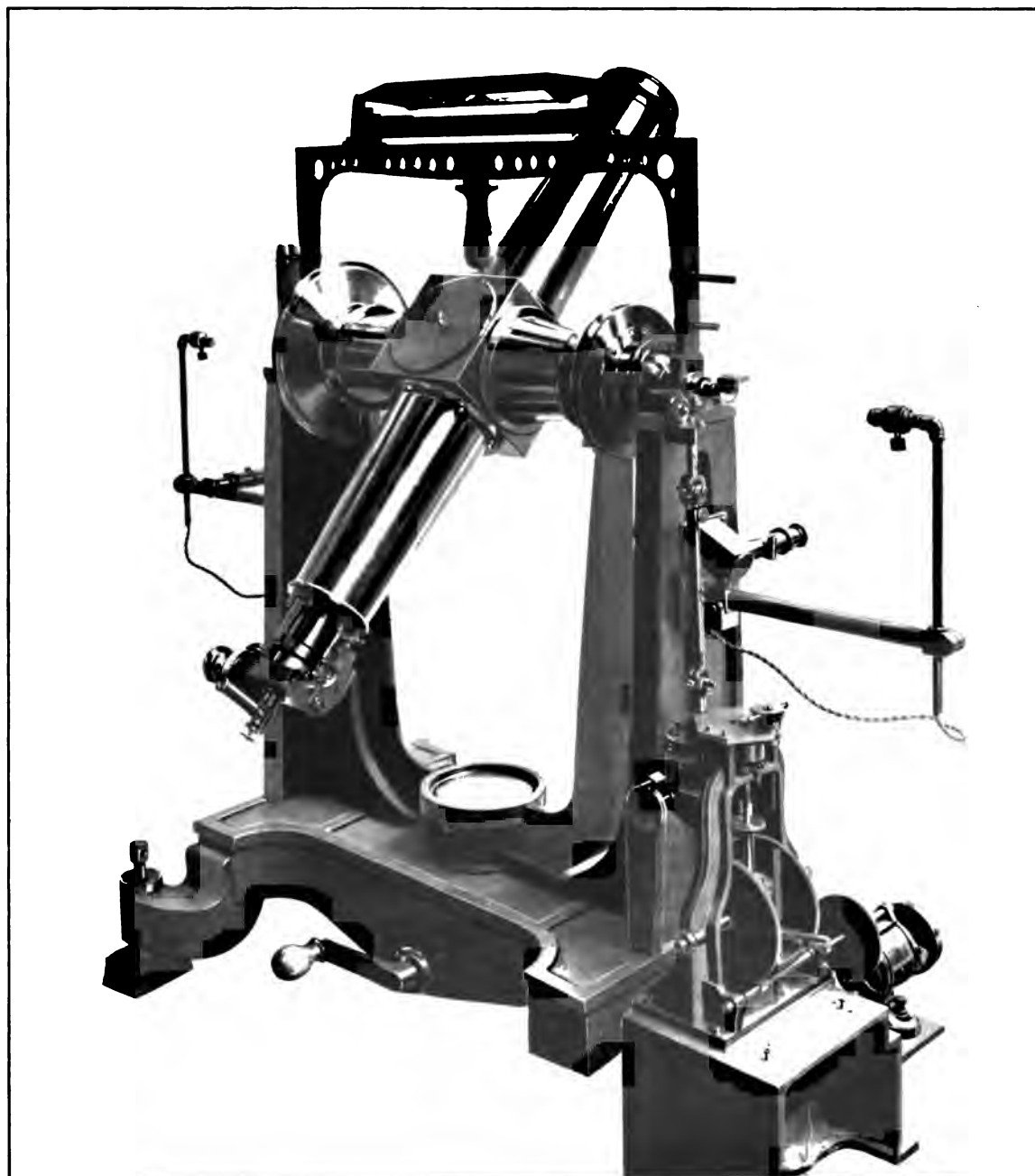
Observatoire de Paris, and having been favorably acted upon by the French authorities, arrangements were made by them for a preliminary campaign. The methods adopted were those developed and employed by the French, and described in "Détermination par la Télégraphique sans Fils de la Différence de Longitude entre Paris et Bizerte, par MM. Lancelin et Tsatsopoulos, sous la direction de M. H. Renan," and other publications.

As in their previous determinations they had not used the method over a distance exceeding 960 miles, which is the distance from Paris to Bizerte, and as the distance from Washington to Paris is 3,830 miles, it was considered desirable to make some preliminary experiments in order to ascertain whether the methods would meet the requirements involved in the determination of the difference of longitude over so great a distance. Therefore the French organized a preliminary expedition and sent over a party in March, 1913, to occupy the Washington station for this purpose. The party consisted of Hydrographic Engineer-in-Chief L. DRIENCOURT, French Navy, Commandant G. FERRIÉ, French Army, Capt. LÉVESQUE, French Army, Lieut. C. GIGNON, French Navy, and Prof. H. ABRAHAM, of the faculty of sciences of the University of Paris. At the same time the United States was represented in Paris by Commander HOUGH and Prof. HALL. The French party was equipped with astrolabes as developed and perfected by Messrs. CLAUDE and DRIENCOURT for the determination of time, and with the necessary auxiliary apparatus for the emission of the radio signals and for their reception by ear and by photography. Prof. ABRAHAM was especially in charge of the work that pertained to the photographic registration of the signals.

Although it was then very late in the season for successful radio transmission over so great a distance, the observers succeeded in securing a sufficient number of radio clock comparisons on two nights to convince them that the radio method would be entirely practicable at a more favorable season of the year, and to give a good approximate value of the difference of longitude between the stations occupied. The astronomical station occupied in Paris for this preliminary work was in the Champ de Mars and on this side the astronomical station was near the radio station at Radio, Va. No astronomical determination of the difference of longitude between the station occupied at Radio and the Naval Observatory has been made. The United States Coast and Geodetic Survey has connected the stations by triangulation, but the deflection of the vertical is somewhat irregular in this region, so that the results of the preliminary work can not be satisfactorily compared with those from the definitive work until a determination of the astronomical difference of longitude between these stations shall have been made. For a report of the results obtained by the French on this preliminary expedition, which should be regarded as a reconnaissance preliminary to the more extensive work of the following season, see Comptes Rendus de l'Académie des Sciences, July 21, 1913.

PREPARATIONS FOR THE DEFINITIVE LONGITUDE WORK.

As warm weather is unfavorable for transmitting radio signals to great distances, it was planned to begin the definitive operations as early as possible in the fall of 1913. For the use of the American observers, two new transits were ordered



TRANSIT INSTRUMENT MADE BY G. PRIN, PARIS.

from G. PRIN, of Paris. They were to be in all essential features duplicates of those in use by the French observers in the Paris-Bizerte work, and a full description of the type of instrument is given in the report of that work. They were of 3 inches aperture, 33 inches focal length, with self-registering right ascension micrometers driven by small electric motors and controlled by hand, reversible on each star, with hardened steel pivots which bear throughout their whole length, and electric lighting. A meridian mark and a lens of approximately 160 feet focal length was provided with each instrument. One instrument, which is called Prin transit No. 1, was delivered in Washington, and the other, which is called Prin transit No. 2, was delivered in Paris in time for some preliminary practice before work was begun near the end of October, 1913. Director B. BAILLAUD, of the Paris Observatory, also very kindly sent over the instrument, which the French observer was to use in Washington, several months in advance in order that the American observers might familiarize themselves with it by making practice observations.

As it was planned that the work should be done in duplicate by French and American observers working simultaneously, it was necessary to erect two small buildings in the observatory grounds at Washington for the shelter of the instruments. These buildings, which were exactly alike, were side by side, 12 feet apart, and their outside dimensions were 16 feet north and south by 12 feet east and west. The outer walls were made of sheet-iron louver work, and there was a lining of flat sheet iron. Each roof moved off in two sections, one to the east and one to the west. The piers were made of concrete. In addition to those for the transit instruments, others were provided for the long-focus lenses and for the meridian marks. The latter, which were to the northward, were housed in small shelters of sheet-iron louver work. The line of sight to the meridian mark for the east instrument was inclined upward at an angle of $1^{\circ}.2$ and that for the west instrument was inclined upward $1^{\circ}.7$. The east house was used by the French and the west house by the American observers. At Paris there were two observing houses in the grounds of the Paris Observatory which were assigned to the two instruments at that station. Each was provided with a meridian mark to the southward and in the horizontal plane.

Capt. W. H. G. BULLARD, United States Navy, Superintendent Naval Radio Service, and his staff, cooperated heartily in making the necessary arrangements for the emission and reception of signals at Radio, Va., and in securing the minimum of interference from other radio stations.

At Paris the American longitude parties were under the direction of the naval attaché, Commander H. H. HOUGH, United States Navy, to whose energy and address the success of the preliminary arrangements is largely due. In February, 1914, Commander HOUGH was relieved by Lieut. Commander S. I. M. MAJOR, United States Navy. Director B. BAILLAUD and the staff of the Paris Observatory and Commandant G. FERRIÉ and the staff of the Eiffel Tower radio station made every effort to perfect the arrangements in Paris, and their cordial cooperation is acknowledged with profound gratitude.

The American observers connected with the work were, for the first period at Washington, Prof. F. B. LITTELL, United States Navy, and Lieut. W. T. MALLISON,

United States Navy, astronomical observers, and Ensigns H. E. SAUNDERS and R. A. LAVENDER, United States Navy, radio observers; and at Paris, Assistant Astronomer G. A. HILL and Lieut. C. W. MAGRUDER, United States Navy, astronomical observers, and Lieut. R. B. COFFMAN and Ensign G. S. GILLESPIE, United States Navy, radio observers. For the second period the observers interchanged stations, the astronomical observers taking their transit instruments with them.

The French observers for the first period at Washington were Astronomer M. SIMONIN, of the Paris Observatory, astronomical observer, Lieut. C. GIGNON, of the French Navy (temporary) and Capt. A. CARRIER, of the French Army, radio observers, and Prof. H. ABRAHAM, of the University of Paris, photographic observer; and at Paris, Astronomer E. VIENNET, of the Paris Observatory, astronomical observer, Ensign P. AUVERNY, of the French Navy, radio observer, and M. BEAUVAIS, photographic observer. For the second period the astronomical and radio observers interchanged stations.

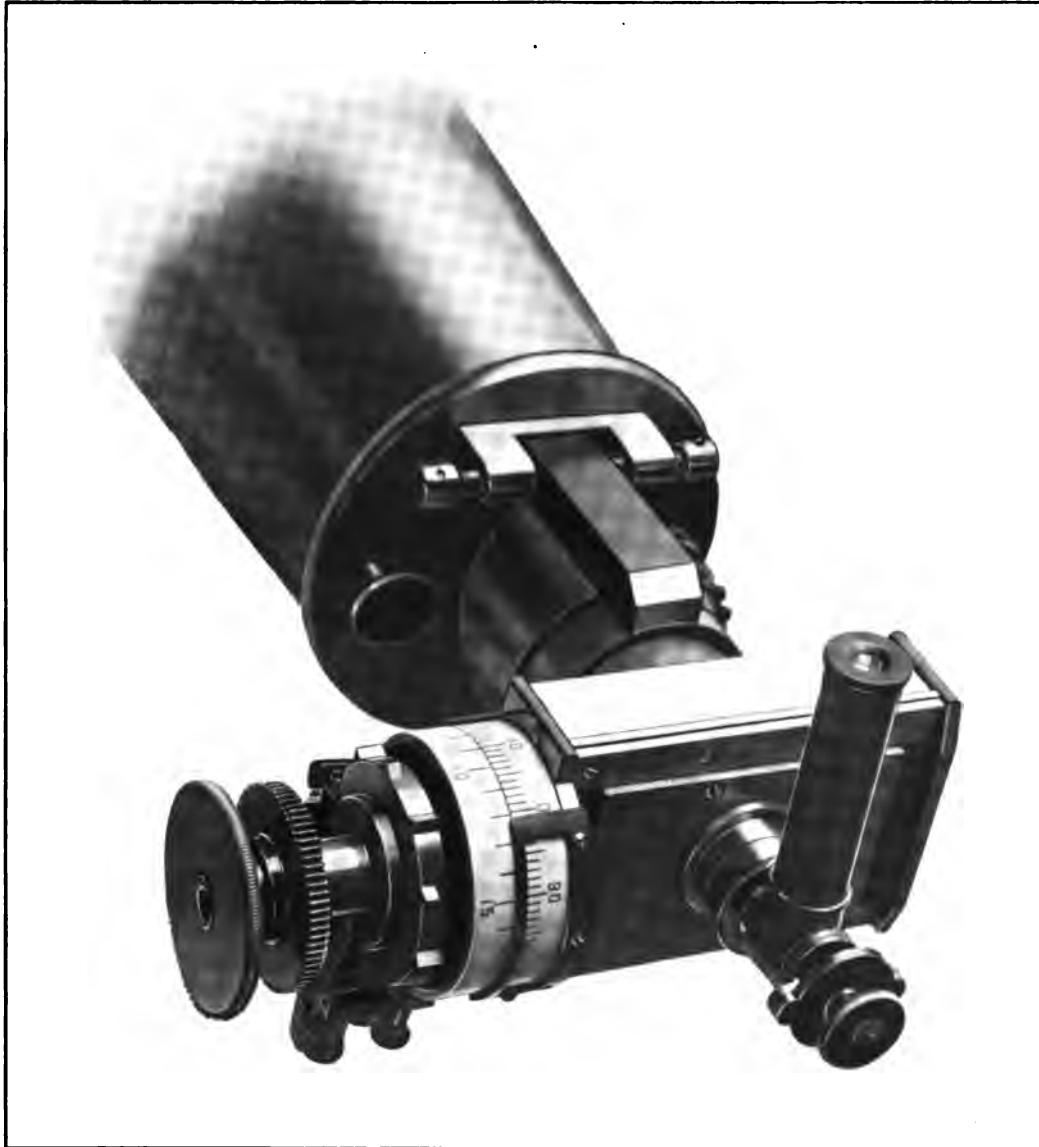
THE ASTRONOMICAL PROGRAM.

The astronomical program was to observe from 7.30 p. m. to 1.30 a. m., local mean time at both Washington and Paris. Each star was observed with instrument direct and reversed and the effects of collimation error and error due to inequality of pivots were thus immediately eliminated. A small correction always positive in sign and dependent upon the duration of the right ascension micrometer signals was determined and applied. The level correction was determined by the striding spirit level between every two star observations, and the azimuth correction by means of readings on the meridian marks which were also made between every two star observations. With this program about five clock stars per hour could be observed. When possible, three or four azimuth stars were observed each night for the determination of the azimuths of the marks. The observing list for each station was made up so that in any period of three hours the stars were fairly well balanced as to the zenith. Nearly all the stars north of the Washington zenith and south of the Paris zenith were common to both observing lists. The two astronomical observers of each party were to alternate in observing the first and last half of the evening.

THE RIGHT ASCENSION MICROMETER SCREWS.

By the method of observing all errors of the micrometer screws were eliminated from the transit observations, therefore no examination of the screws has been made, except the determination of the general value of a revolution for use in deducing the azimuths of the instruments from measures on the meridian marks and for deducing the corrections for duration of the contacts. The value of one revolution of the micrometer screw for transit No. 1 was determined from the observations of 13 transits of stars between declination $+82^\circ$ and declination $+89^\circ$ and for transit No. 2 from the observations of 23 transits of stars between declination $+53^\circ$ and declination $+87^\circ$. The resulting values are as follows:

Transit No. 1 one revolution = $7^s9248 \pm 0^s0011$
 Transit No. 2 one revolution = $7^s9178 \pm 0^s0021$



RIGHT ASCENSION MICROMETER OF TRANSIT INSTRUMENT.

The micrometers were arranged so as to close an electric contact automatically either 5 or 10 times during each revolution with an extra contact in either case to mark the beginning of the revolution. Every time the contact was closed a signal was recorded on the chronograph. Usually the instruments were arranged to record 10 signals per revolution, and signals were recorded for about two revolutions previous to reversing and for two after reversing. Of these signals only 10 of the first and the corresponding 10 of the second series were read off and used. The recording of the signals was controlled by a small switch on the instrument operated by the observer, and signals were only recorded when the stars were between certain of the fixed threads of the reticle.

THE LEVELS.

Each instrument was furnished with a striding level. The level vials have 100 divisions, each approximately one-twelfth inch long, and have an air chamber for regulating the length of the bubble. The angular value of a division of each was determined by measures on a level trier made by BUFF & BUFF. There was evidence of systematic variation of the radius of curvature of each which caused the values of the divisions to increase from the middle toward each end. However, for the portions of the tubes between divisions 15 and 85, the curvature was fairly constant and care was taken to keep the levels so adjusted that the readings would in general fall within these limits, and also to keep the level of the instruments small so that slight errors in the adopted values of the divisions would have little influence on the clock corrections. The adopted value of one division of each level is as follows:

Transit No. 1.....one division = $0^{\circ}0536$ from 17 sets.

Transit No. 2.....one division = $0^{\circ}0715$ from 10 sets.

For the level of transit No. 1 there was indication in the measures of a slight temperature effect, causing the value of a division to increase $0^{\circ}00012$ for each increase of 1° F. in temperature. The effect of this on the results was found to be negligible and it was disregarded.

After the completion of the work the two levels were compared by measuring the inclinations of the axes of the transit instruments with each alternately, and it was found that the inclinations obtained from the readings of the level of transit No. 2 required a correction of $+0^{\circ}020 \pm 0^{\circ}005$ to reduce them to those obtained by the use of the level of transit No. 1, both levels being in good adjustment in respect to azimuth at the time. No correction for this difference has been applied except in the discussion of systematic corrections.

THE CLOCKS AND THE LAGS OF THE RELAYS.

At Washington the RIEFLER standard sidereal observing clock which is situated in a constant temperature vault, and is in an air-tight case under constant pressure, was used. It sends its signals on the even seconds (omitting for identification the signal at the zero second of each minute) to a small break circuit relay which operates a large 7-point break circuit relay which distributes the signals to the various

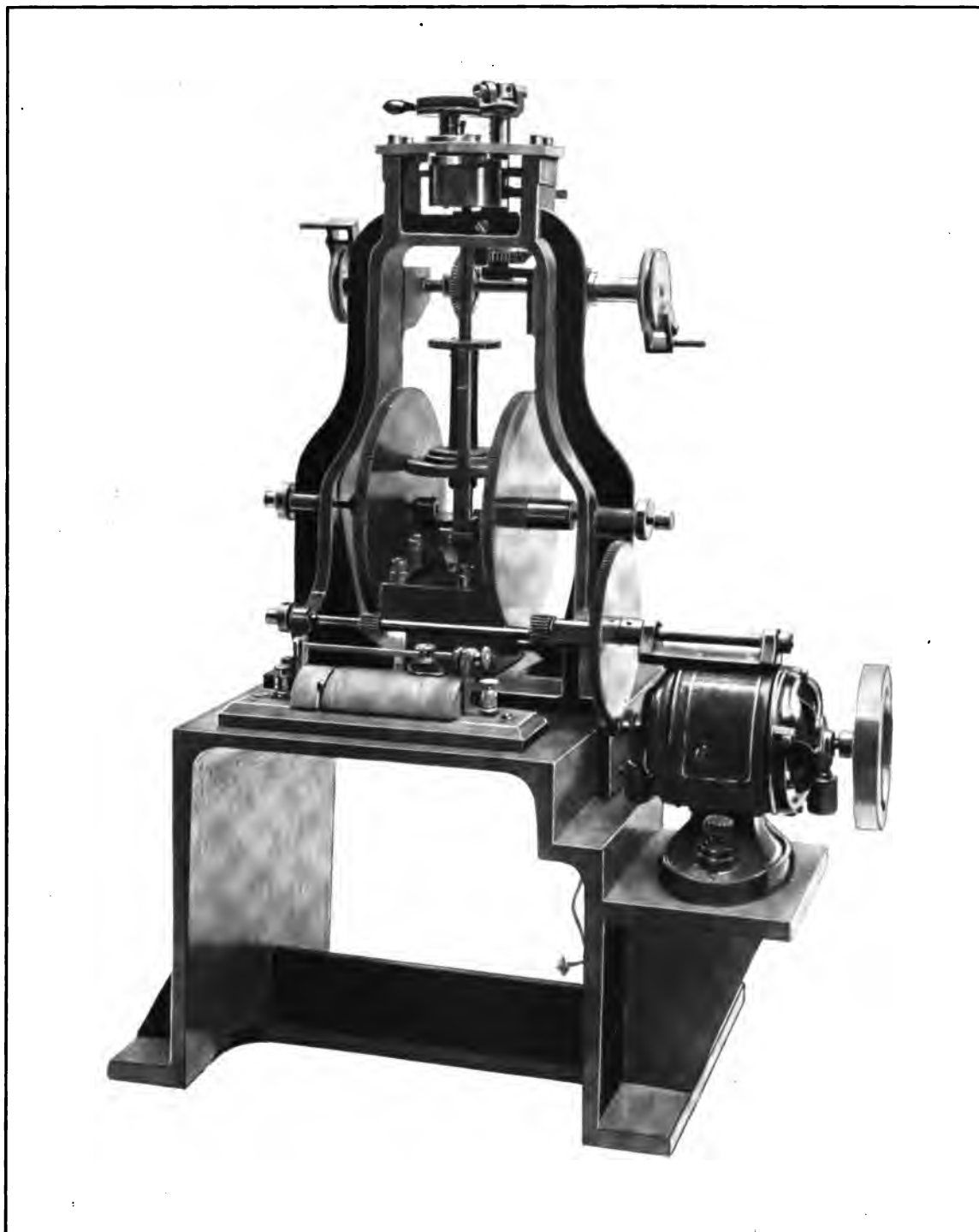
instruments of the observatory. Only one of the seven points being available, it was used to operate a 4-point relay, one of whose points was used to send the clock signals to the radio observers at Radio, Va., one to the French chronograph, and one to the American chronograph. As the French chronograph could operate only on a make circuit, and as the American could operate on either, the circuits were arranged as make circuits. By the above arrangement the 4-point relay became practically the observing clock, and it was only necessary to determine the lag of the point used for the chronograph relative to that used to send signals to the radio observers.

This was done by recording on the chronograph sidereal time signals alternately through the different points, while at the same time mean-time signals were being recorded on the chronograph through an independent circuit. When the French observers arrived in Washington, Prof. ABRAHAM brought with him two galvanometer pen chronographs designed by himself and especially adapted for the recording of such lags, and he very kindly loaned one to the Naval Observatory. It was on the whole more convenient in use than the other arrangement and gave practically the same results with smaller accidental error. From some experimental observations there was indicated a small systematic difference of about $0^{\circ}004$ between the results obtained by the two methods which was attributed by Prof. ABRAHAM to the superior sensitiveness of his chronograph. For a short period at the beginning, the average relative lag between the point used by the radio observers and that used for the American chronograph was $+0^{\circ}010$. The point then in use for the chronograph having been shown by records on the much more sensitive photographic galvanometer chronograph of Prof. ABRAHAM to be defective, the chronograph circuit was changed to the other available point of the relay and after adjustment the lag was found to be very small and remained so throughout the remainder of the work.

In general two measures of the lag were made each night, one before and one after the radio observations. After the installation of the ABRAHAM chronograph the record on the American chronograph was sometimes omitted. While the result from the ABRAHAM chronograph, which was uniformly zero, is given in Table I to the thousandth of a second, it is considered possible that a lag of a few thousandths of a second might, under certain circumstances, have escaped detection in the record of this instrument.

In connection with the lags the interval of time from the closing of the contact at the observatory to the reception of the signal in the telephone receiver at Radio was measured by the American radio observers and by Prof. ABRAHAM and was found to be negligible.

Table I gives the observed and adopted values of the lag at Washington.



MOTOR, SPEED CHANGE AND CONTROL OF RIGHT ASCENSION MICROMETER.

TABLE I.—*Lag at Washington.*

Date.	American Chronograph.	ABRAHAM Chronograph.	Adopted.	Date.	American Chronograph.	ABRAHAM Chronograph.	Adopted.
1913	s	s	s	1913	s	s	s
Oct. 27	+0.010	.....	+0.010	Dec. 26	.....	0.000	0.000
	+0.007	.....	.....		.....	0.000	.....
28	+0.006	.....	+0.010	27	-0.001	0.000	0.000
	+0.001	.....	.....		.....	0.000	.....
29	+0.008	.....	+0.010	29	0.000	0.000	0.000
	+0.006	.....	.....		.....	0.000	.....
31	+0.011	.....	+0.010	30	.....	0.000	0.000
	+0.008	.....	.....		.....	0.000	.....
Nov. 1	+0.003	.....	+0.010	31	-0.004	0.000	0.000
	+0.014	.....	.....		.....	0.000	.....
3	+0.004	.....	+0.010	1914			
	+0.010	.....	.....	Jan. 21	+0.012	.....	0.000
4	+0.007	.....	+0.010		+0.004	.....	.....
	-0.001	.....	.....	26	-0.001	0.000	0.000
5	+0.017	.....	+0.010		+0.005	0.000	.....
	+0.014	.....	.....	27	-0.004	0.000	0.000
6	+0.008	.....	+0.010		0.000	0.000	.....
7	+0.017	.....	+0.010	28	-0.008	0.000	0.000
	+0.019	.....	.....		-0.003	0.000	.....
10	+0.012	.....	+0.010	29	+0.003	0.000	0.000
	+0.012	.....	.....		-0.004	0.000	.....
11	+0.010	.....	+0.010	31	+0.006	0.000	0.000
	+0.009	.....	.....		-0.003	0.000	.....
12	+0.013	.....	+0.010	Feb. 2	+0.009	0.000	0.000
	+0.009	.....	.....		+0.002	0.000	.....
13	+0.010	.....	.....	3	-0.001	0.000	0.000
	+0.008	.....	.....		-0.007	0.000	.....
17	0.000	.....	0.000	4	+0.005	0.000	0.000
	+0.005	.....	.....		-0.010	0.000	.....
18	-0.002	.....	0.000	7	+0.006	0.000	0.000
	0.000	.....	.....		-0.005	0.000	.....
19	+0.002	.....	0.000	9	+0.003	0.000	0.000
	-0.004	.....	.....		+0.002	0.000	.....
20	+0.007	.....	0.000	11	-0.004	0.000	0.000
	+0.002	.....	.....		0.000	0.000	.....
21	.....	.....	0.000	17	-0.007	0.000	0.000
	+0.008	.....	.....		-0.004	0.000	.....
Nov. 22	+0.002	.....	0.000	21	-0.001	0.000	0.000
	+0.004	.....	.....		+0.002	0.000	.....
24	+0.004	.....	0.000	24	+0.008	.....	0.000
	-0.002	.....	.....		+0.007	.....	.....
25	-0.001	.....	0.000	26	-0.005	0.000	0.000
	-0.001	.....	.....		-0.003	0.000	.....
Dec. 3	-0.005	0.000	0.000	27	-0.001	.....	0.000
	-0.004	0.000	.....		-0.012	.....	.....
4	.....	0.000	0.000	Mar. 3	-0.003	0.000	0.000
	.....	0.000	.....		-0.011	0.000	.....
5	+0.005	0.000	0.000	4	-0.005	0.000	0.000
	.....	0.000	.....		-0.008	0.000	.....
8	-0.002	0.000	0.000	7	-0.007	0.000	0.000
	.....	0.000	.....		-0.006	0.000	.....
9	.....	0.000	0.000	9	+0.006	.....	0.000
	.....	0.000	.....		+0.003	.....	.....
11	0.000	0.000	0.000	10	-0.012	.....	0.000
	.....	0.000	.....	12	-0.002	.....	0.000
12	.....	0.000	0.000		-0.004	.....	.....
	.....	0.000	.....	13	-0.001	.....	0.000
13	-0.004	0.000	0.000		+0.006	.....	.....
	.....	0.000	.....	14	+0.010	.....	0.000
15	+0.001	0.000	0.000		+0.003	.....	.....
16	.....	0.000	0.000	18	+0.001	.....	0.000
	.....	0.000	.....		+0.003	.....	.....
18	+0.003	0.000	0.000	20	-0.012	.....	0.000
	.....	0.000	.....		-0.002	.....	.....
19	.....	0.000	0.000	23	-0.011	.....	0.000
	.....	0.000	.....		-0.005	.....	.....
20	-0.002	0.000	0.000	24	-0.011	.....	0.000
	.....	0.000	.....		-0.002	.....	.....
22	.....	0.000	0.000	26	-0.013	.....	0.000
	.....	0.000	.....		+0.003	.....	.....
23	-0.003	0.000	0.000	Apr. 3	-0.002	.....	0.000
	.....	0.000	.....		.....	.....	.....

* Changed relay point.

At Paris the RIEFLER clock which is used as the standard is in an air-tight case situated in a chamber in the catacombs at a depth of about 28 meters below the surface of the ground, where the temperature change is practically zero. The clock sends its signals on the even seconds (omitting for identification the signal at the fifty-eighth second of each minute) and synchronizes another RIEFLER clock, called A^2 , which in turn synchronizes a "pendule relais," or clock relay, which distributes the signals to the chronographs. The synchronizing circuit apparently operates when the pendulum of the clock relay is at its lowest point and the signal circuit from the relay is closed when the pendulum is near the end of its swing so that the lag is either approximately $+0^s.5$ or $+1^s.5$ according to direction in which the pendulum is swinging when it is synchronized. But the value of the lag as applicable to times recorded on the chronograph also depends on the identification of the zero second. The relay sends its signals on alternate seconds and omits no signals for identification. Consequently the signal nearest the RIEFLER zero was identified as the zero and the lag instead of being as above indicated was either approximately $+0^s.5$ or $-0^s.5$. Also it is evident that if the synchronizing circuit is out of action for a time or if the clock relay is stopped and started again, the value of the lag may be changed from one to the other of the above values. During Period I it had the former values and during Period II the latter. It was measured several times each night by direct comparison with the RIEFLER clock by means of an ABRAHAM galvanometer pen chronograph, and also usually by the radio observers at the Eiffel Tower by the coincidence method, suitable electric connections having been provided for this purpose. The results of the two methods are in substantial agreement.

After January 29, 1914, the American chronograph received its signals through a "pendulette relais" instead of through the "pendule relais," as the requirements of the French and American chronographs as to length of signal were so different that it was not convenient to operate both of them by the same relay. The "pendulette relais" which was also synchronized by the RIEFLER clock A^2 , sent signals to the chronograph every second. About this time, also, the practice was adopted of securing a record of the zero of the RIEFLER clock on the chronograph sheet by watching the ABRAHAM pen chronograph which was operated by an induced current from the RIEFLER clock circuit and tapping the chronograph key so as to make a record on the chronograph at the zero second. By means of this record, the value of the lag corresponding to the assumed zero second on the chronograph sheet was freed from ambiguity. The synchronization of the "pendulette relais" was as satisfactory as that of the "pendule relais," as shown by the variations of lag during the various nights' work.

During Period I the circuit for determining the lag at Paris was so arranged as to include the lag of the chronograph, which lag was really eliminated by the arrangement of the clock and right ascension micrometer circuits. For Period II the arrangement was changed so that the lag of the chronograph was not included in the measurements. The lag of the chronograph relay depended on the state of the dry batteries that operated it. At the time the change was made it was measured and found to be $+0^s.027$. The batteries were then pretty well run down. M. BEAUVAIS, of the Paris Observatory, had measured it some weeks previously

and found it to be $+0^{\circ}015$. With fresh batteries it was practically zero. It is therefore probable that it averaged about $+0^{\circ}01$ during Period I. No correction has been applied for this except in the discussion of systematic corrections. Its effect, if applied, would be to increase the longitudes from Period I by this amount.

Table II gives the observed and adopted values of the lag at Paris. On February 24 the "pendulette relais" stopped and had to be adjusted and started again, so there are two values of the adopted lag for that night, one applicable before and the other after the adjustment of the relay.

TABLE II.—*Lag at Paris.*

Date.	ABRAHAM Chronograph.	Coincidences at Eiffel Tower.	Adopted.	Date.	ABRAHAM Chronograph.	Coincidences at Eiffel Tower.	Adopted.
1913	s	s	s	1914	s	s	s
Nov. 1	+0.412	.....	+0.414	Jan. 22	-0.564	.....	.....
	+0.415	.....	.....		-0.558	-0.564	.....
	+0.415	.....	.....		-0.564	-0.562	.....
5	+0.402	.....	+0.412	23	-0.542	.....	-0.537
	+0.410	.....	.....		-0.520	.....	.....
	+0.425	.....	.....		-0.550	-0.534	.....
6	+0.380	.....	+0.377		-0.536	-0.528	.....
	+0.375	.....	.....	24	-0.535	.....	-0.539
	+0.375	.....	.....		-0.536	.....	.....
7	+0.408	.....	+0.390		-0.542	.....	.....
	+0.385	.....	.....		-0.552	-0.532	.....
	+0.378	.....	.....		-0.530	-0.542	.....
8	+0.335	.....	+0.361		(*)	.....	.....
	+0.378	.....	.....	31	-0.576	.....	-0.573
	+0.370	+0.406	.....		-0.574	.....	.....
11	+0.348	.....	+0.355		-0.580	.....	.....
	+0.355	.....	.....		-0.562	-0.580	.....
	+0.362	+0.359	.....		-0.572	-0.578	.....
16	+0.352	.....	+0.350	Feb. 2	-0.578	.....	-0.574
	+0.352	.....	.....		-0.572	.....	.....
	+0.345	.....	.....		-0.576	.....	.....
19	+0.378	.....	+0.381		-0.576	-0.576	.....
	+0.382	+0.377	.....		-0.570	-0.553	.....
	+0.382	+0.408	.....	3	-0.574	.....	-0.570
29	+0.420	.....	+0.440		-0.574	.....	.....
	+0.445	+0.454	.....		-0.563	.....	.....
	+0.455	+0.451	.....		-0.568	-0.555	.....
Dec. 8	+0.402	.....	+0.432		-0.572	-0.574	.....
	+0.455	.....	.....	4	-0.566	.....	-0.564
	+0.440	+0.445	.....		-0.566	.....	.....
13	+0.500	.....	+0.500		-0.574	.....	.....
	+0.500	+0.536	.....		-0.554	-0.563	.....
	+0.500	.....	.....		-0.559	-0.584	.....
19	+0.376	.....	+0.377		(†)	.....	.....
	+0.376	+0.363	.....	5	-0.510	.....	-0.509
	+0.378	+0.383	.....		-0.510	.....	.....
20	+0.388	.....	+0.392		-0.504	.....	.....
	+0.392	+0.410	.....		-0.510	-0.520	.....
	+0.397	+0.415	.....		-0.512	-0.520	.....
23	+0.375	.....	+0.369	9	-0.522	-0.526	-0.526
	+0.362	+0.359	.....		-0.530	-0.523	.....
	+0.370	+0.366	.....	10	-0.510	.....	-0.516
31	+0.400	.....	+0.397		-0.522	.....	.....
	+0.400	.....	.....		-0.526	.....	.....
	+0.392	.....	.....		-0.512	-0.522	.....
1914					-0.508	-0.516	.....
Jan. 21	-0.564	.....	-0.572	12	-0.503	.....	-0.509
	-0.572	.....	.....		-0.516	.....	.....
	-0.578	-0.564	.....		-0.501	.....	.....
	-0.574	-0.564	.....		-0.517	-0.522	.....
22	-0.577	.....	-0.566	17	-0.509	.....	-0.506

* Changed to pendulette.

† Location of pendulette changed.

TABLE II.—*Lag at Paris*—Continued.

Date.	ABRAHAM Chronograph.	Coincidences at Eiffel Tower.	Adopted.	Date.	ABRAHAM Chronograph.	Coincidences at Eiffel Tower.	Adopted.
1914	s	s	s	1914	s	s	s
Feb. 17	-0.508	.....	.....	Feb. 26	-0.575	-0.567	.....
	-0.503	.....	.....	27	-0.568	.....	-0.564
	-0.503	.....	.....		-0.560	.....	.....
	-0.507	-0.507	.....		-0.554	.....	.....
24	-0.447	.....	-0.427		-0.566	-0.564	.....
	-0.433	.....	.....		-0.574	-0.563	.....
	-0.400	.....	.....	28	-0.562	.....	-0.561
	(*)	.....	.....		-0.560	.....	.....
	-0.560	-0.560	-0.554		-0.559	.....	.....
	-0.549	-0.569	.....		-0.555	-0.563	.....
25	-0.568	.....	-0.566		-0.567	-0.558	.....
	-0.564	-0.566	.....	Mar. 2	-0.558	.....	-0.555
	-0.565	-0.570	.....		-0.555	.....	.....
26	-0.565	.....	-0.570		-0.548	.....	.....
	-0.573	.....	.....		-0.555	-0.547	.....
	-0.565	-0.569	.....		-0.560	-0.559	.....

* Pendulette relais stopped.

DURATION OF CONTACTS.

By reversing the transit instrument on each star the collimation error can be eliminated, but a small error is introduced depending on the duration of the contact which makes the automatic record on the chronograph. In order to correct for this, a measurement was usually made at convenient times by turning the micrometer slowly until contact was made, as evidenced by the sound of the relay, first in one direction and then in the other, and noting the micrometer readings when contact was made. This was done for each of the 10 contacts and the mean was taken. If this quantity is called D , and it is expressed in seconds of time, the correction to be applied to each observation is $\frac{1}{2} D \sec \delta$, always positive. From November 1 to November 25, at Paris, this quantity was determined from the chronographic records of the transits of azimuth stars. The following table gives the observed and adopted values of $\frac{1}{2} D$:

TABLE III.—*Values of $\frac{1}{2} D$.*

WASHINGTON.

Transit No. 1.			Transit No. 2.		
Date.	Observed.	Adopted.	Date.	Observed.	Adopted.
1913	s	s	1914	s	s
Oct. 27	0.031	Jan. 20	0.044	.....
28	0.031	21	.....	0.043
29	0.031	26	.....	0.043
31	0.031	27	.....	0.043
Nov. 1	0.031	28	0.043	0.037
3	0.031	29	.....	0.037
4	0.031	31	.....	0.037
5	0.031	Feb. 2	.....	0.037
6	0.031	3	.....	0.037
7	0.033	0.031	4	.....	0.037
10	0.031	7	.....	0.037
11	0.031	9	0.031	0.028

TABLE III.—*Values of $\frac{1}{2} D$* —Continued.

WASHINGTON—Continued.

Transit No. 1.			Transit No. 2.		
Date.	Observed.	Adopted.	Date.	Observed.	Adopted.
1913	^s	^s	1914	^s	^s
Nov. 12	0.029	0.031	Feb. 11	.....	0.028
13	.....	0.031	17	.....	0.028
17	0.036	0.031	21	.....	0.028
18	0.027	0.031	24	.....	0.028
19	.....	0.031	26	0.025	0.025
	*		27	.....	0.025
20	0.049	0.044	Mar. 3	.....	0.025
21	0.043	0.044	4	.....	0.025
22	.....	0.044	7	.....	0.025
24	0.038	0.043	9	.....	0.025
25	.....	0.043	10	.....	0.025
Dec. 3	.....	0.040	12	.....	0.025
4	0.042	0.040	13	.....	0.025
5	.....	0.040	14	0.024	0.027
6	0.038	.....	18	.....	0.027
8	.....	0.039	20	.....	0.027
9	0.040	0.038	23	.....	0.027
11	.....	0.036	24	.....	0.027
12	0.036	0.036	25	0.033	.....
13	.....	0.035	26	.....	0.032
15	.....	0.034	Apr. 3	.....	0.032
16	0.033	0.033	6	0.030	.....
18	.....	0.034			
19	0.032	0.034			
20	.....	0.035			
22	0.038	0.036			
23	.....	0.037			
26	0.041	0.040			
27	.....	0.041			
29	0.044	0.044			
30	0.044	0.044			
31	.....	0.044			

* Contact adjusted.

PARIS.

Transit No. 2.			Transit No. 1.		
Date.	Observed.	Adopted.	Date.	Observed.	Adopted.
1913	^s	^s	1914	^s	^s
Nov. 1	0.059	0.052	Jan. 21	.....	0.041
5	0.046	0.052	22	0.039	0.041
6	0.049	0.052	23	.....	0.042
7	0.030	0.049	24	.....	0.042
8	0.063	0.049	26	0.044	.....
11	0.067	0.049	31	.....	0.045
16	0.043	0.049	Feb. 2	0.048	0.046
19	0.049	0.045	3	0.048	0.047
21	0.050	.....	4	.....	0.047
25	0.038	.....	5	.....	0.048
28	0.034	.....	9	0.049	0.049
29	.....	0.053	10	.....	0.050
Dec. 8	0.074	0.053	12	.....	0.051
10	0.044	.....	13	0.049	.....
13	0.050	0.053	17	0.057	0.053
19	0.048	0.053	24	.....	0.055
20	.....	0.053	25	.....	0.055
23	.....	0.053	26	0.056	0.055
27	0.050	.....	27	0.054	0.055
31	.....	0.053	28	.....	0.055
			Mar. 2	0.052	0.054
			5	0.057	.....

THE AZIMUTHS OF THE MERIDIAN MARKS.

The meridian mark at Washington consisted of an artificial star produced by the illumination of a small circular hole in a metal plate. This was located to the northward of the transit instrument in the focus of the meridian mark lens, which was of 3 inches aperture and approximately 160 feet focal length. At Paris there was a similar meridian mark to the southward of the transit instrument, but instead of an artificial star there was a pair of vertical lines on a glass plate, between the images of which the movable thread of the micrometer of the transit instrument could be placed. From the readings on the marks there seems to be a small advantage in the latter arrangement.

The following are the probable errors of the mean of a set of five readings on the meridian marks for the different observers.

TABLE IV.—*Probable Errors of Readings on the Meridian Marks.*

	Paris.	Washington.
LITTELL	^s ±0.0056	^s ±0.0069
MALLISON	±0.0097	±0.0106
HILL	±0.0021	±0.0029
MAGRUDER	±0.0022	±0.0040

The azimuth of the mark at Washington remained fairly steady for the first two months, but after that it exhibited a number of sudden changes. This may have been due to the fact that the concrete piers were not thoroughly seasoned.

At Paris the azimuth of the mark was more steady, although there seems to have been considerable progressive change during Period I. There was practically no difference in the azimuths of the marks as determined from above and below pole observations.

The following table gives the observed and adopted values of the azimuths of the marks:

TABLE V.—*The Azimuths of the Meridian Marks.*

WASHINGTON.

Date.	No. Stars.	Observed.	Adopted.	Date.	No. Stars.	Observed.	Adopted.
1913		^s	^s	1914		^s	^s
Oct. 27	3	-0.090	-0.111	Jan. 21	2	-0.024	-0.018
28	4	-0.115	-0.111	26	3	-0.015	-0.018
29	3	-0.088	-0.111	27	5	-0.018	-0.018
31	3	-0.138	-0.111	28	5	-0.036	-0.018
Nov. 1	4	-0.122	-0.111	29	7	+0.039	-0.018
3	2	-0.131	-0.138	31	5	+0.018	-0.018
4	3	-0.158	-0.138	Feb. 2	5	-0.042	-0.018
5	4	-0.135	-0.138	3	5	-0.049	-0.018
6	3	-0.142	-0.138	4	2	-0.063	-0.018
7	1	-0.159	-0.138	7	5	-0.033	-0.018
10	2	-0.124	-0.138	9	5	+0.007	-0.018
11	1	-0.103	-0.138	11	4	-0.003	-0.018
12	2	-0.160	-0.125	17	4	+0.300	+0.217
13	2	-0.118	-0.125	21	5	+0.152	+0.217
17	2	-0.127	-0.125	24	4	+0.181	+0.217
18	1	-0.116	-0.125	26	4	+0.252	+0.217
19	.	.....	-0.125	27	2	+0.445	+0.549
20	3	-0.110	-0.125	Mar. 3	2	+0.566	+0.549
21	3	-0.153	-0.125	4	4	+0.592	+0.549
22	4	-0.101	-0.125	7	5	+0.059	+0.064
24	4	-0.136	-0.115	9	1	+0.078	+0.064
25	1	-0.146	-0.115	10	2	+0.045	+0.064
Dec. 3	4	-0.116	-0.115	12	4	+0.072	+0.064
4	4	-0.068	-0.115	13	4	+0.097	+0.064
5	4	-0.131	-0.115	14	4	+0.049	+0.064
8	3	-0.128	-0.134	18	3	+0.047	+0.064
9	4	-0.152	-0.134	20	4	+0.036	+0.064
11	4	-0.152	-0.134	23	4	+0.082	+0.064
12	6	-0.112	-0.134	24	5	+0.064	+0.064
13	4	-0.084	-0.105	26	4	+0.111	+0.064
15	4	-0.148	-0.105	Apr. 3	3	+0.051	+0.064
16	1	-0.074	-0.105				
17	1	-0.048	-0.105				
18	4	-0.107	-0.105				
19	3	-0.160	-0.128				
20	4	-0.130	-0.128				
22	1	-0.163	-0.128				
23	2	-0.112	-0.128				
26	3	-0.092	-0.128				
27	4	-0.033	-0.036				
29	4	-0.035	-0.036				
30	4	-0.019	-0.036				
31	1	-0.118	-0.036				

PARIS.

1913		^s	^s	1914		^s	^s
Nov. 1	2	+0.250	+0.239	Jan. 21	3	+0.599	+0.641
5	2	+0.205	+0.239	22	4	+0.621	+0.641
6	1	+0.200	+0.239	23	4	+0.677	+0.641
7	1	+0.240	+0.239	24	3	+0.622	+0.641
8	1	+0.260	+0.239	31	2	+0.702	+0.641
11	1	+0.300	+0.239	Feb. 2	4	+0.621	+0.634
16	1	+0.410	+0.451	3	5	+0.651	+0.634
19	3	+0.467	+0.451	4	4	+0.654	+0.634
29	4	+0.450	+0.451	5	5	+0.610	+0.634
Dec. 8	5	+0.554	+0.565	9	.	.....	+0.634
13	6	+0.573	+0.565	10	5	+0.661	+0.665
19	4	+0.490	+0.545	12	4	+0.701	+0.665
20	6	+0.582	+0.545	17	4	+0.644	+0.665
23	3	+0.470	+0.545	24	3	+0.656	+0.665
31	2	+0.655	+0.545	25	.	.....	+0.670
				26	3	+0.634	+0.675
				27	5	+0.705	+0.675
				28	3	+0.700	+0.675
				Mar. 2	5	+0.657	+0.675

THE CLOCK CORRECTIONS.

The probable error of a single contact time and of the clock corrections from a single star are given below. In the latter the errors of the star places are included. In both cases the probable errors have been reduced to the arc of a great circle.

TABLE VI.—*Probable Errors of Astronomical Observers.*

	Contact Time.	No. Obs.	Clock Correction.	No. Obs.
	^s		^s	
LITTELL	0.029 sec δ	800	0.026 sec δ	812
MALLISON	0.036 sec δ	800	0.029 sec δ	618
HILL	0.036 sec δ	800	0.031 sec δ	336
MAGRUDER	0.035 sec δ	800	0.027 sec δ	384

The above probable errors give for Washington a probable error of $\pm 0^{\circ}008$ and for Paris $\pm 0^{\circ}010$ for a clock correction deduced from an average night's work of about 20 clock-star observations. The intercomparison of the results by the two different observers on the same instrument and of the American and French observers on different instruments indicates a probable error of $\pm 0^{\circ}013$ for Washington and $\pm 0^{\circ}015$ for Paris. The larger values include the effects of variable personal equation and imperfect instrumental action which may account for the difference.

A large part of the discordances of the clock corrections seems to be due to the errors of the determinations rather than to irregular running of the clocks. An attempt was therefore made to obtain better clock corrections on the dates on which observations were made as well as to furnish corrections for the dates on which there were radio observations, but no star observations, by making a least square solution using equations of the form—

$$C_x = C_o + NR + \frac{N^2}{2} \Delta R$$

Where C_x is the clock correction on any date x , C_o is the clock correction on the epoch date, N is the number of days between these dates, R is the daily rate, and ΔR is an assumed constant acceleration of the daily rate. The results, however, were not satisfactory, as the observations were only satisfied with a probable error of $\pm 0^{\circ}021$ for a clock correction.

The clock corrections were then plotted, and it was evident that with the aid of group means it would be possible to draw a rather smooth curve which would represent the observations of a series of nights much better than the least square solution. The curves are too irregular to be accurately represented by so simple an equation as that used in the least square solution, yet they are fairly well defined, and they represent the corrections for a given series of nights better than do the results of the individual night's observation. This is shown by a considerable diminution of the probable error for the longitude from the 17 nights on which observations were secured at both stations when the clock corrections are taken from the curve as compared with that obtained by using the observed value for each night. The curves satisfy the observations for Washington with a probable error of $\pm 0^{\circ}012$ and for Paris with a probable error of $\pm 0^{\circ}015$. The use of the

curve furnishes a means of utilizing all the radio observations on whatever nights they were obtained. While the deviations of the clock correction curve from a simple curve are undoubtedly real and are sometimes quite marked, it is probable that in the case of a good clock installed so as to be effectively protected from change of temperature and of atmospheric pressure the causes which produce these deviations act gradually and spread their effects over considerable periods of time. Among such causes are doubtless the progressive changes taking place in the composition of the lubricating oil and the variable friction due to the disintegration of material in the bearings, the latter probably being quite irregular in its action, yet gradual in its results as affecting the clock corrections.

In all the reductions daily clock rates derived from the least-square solutions already mentioned have been used to carry the clock correction from the epoch of the astronomical observation to that of the radio observation and it was assumed that there was no diurnal variation in the rate. However in the Paris II series it is found that almost invariably the second observer of a night obtained a clock correction smaller than the first observer, while the general clock rate would require the reverse to be true. The difference, which averages about $0^s.04$ for a three hour interval, is too large to be accounted for by periodic errors in the star places, and the lag was measured four or five times each night and does not account for it. It hardly seems possible that there should be so large a diurnal variation in the clock rate, but in order to test what effect such a variation would have upon the longitude results, each night's observations were divided into two groups, averaging about three hours apart, and the rates thus determined were compared with those resulting from the least-square solution for daily rates. There is little indication of such a variation for the clock at Washington, and the variation for Paris I is not large. In all the series except Paris I it was possible to eliminate the effect of personal equation, but for that series, which was seriously interfered with by adverse weather conditions, it was necessary to apply as a correction the personal equation determined from Washington II. The following are the differences obtained:

	Washington.		Paris.	
	I.	II.	I.	II.
Mean of evening rates (per hour).....	$-0^s.0212$	$-0^s.0226$	$+0^s.0066$	$-0^s.0134$
Mean of daily rates (per hour).....	-0.0222	-0.0184	$+0.0010$	$+0.0020$
Correction to daily rates (per hour).....	$+0.0010$	-0.0042	$+0.0056$	-0.0154

As the epoch of the Washington astronomical observations was about two and one-half hours after that of the radio observations, and as the epoch of the Paris astronomical observations was about two and one-half hours before that of the radio observations, the correction to the longitude resulting from the above differences on the hypothesis that they represent a real variation in rate may be estimated approximately as follows:

	I.	II.	Mean.
$\Delta\lambda$	$+0^s.017$	$-0^s.049$	$-0^s.016$

In deducing the observed clock correction for each night when star observations were made the mean value of the lag for the night has been applied as a correction. As applied to the clock correction it has the opposite sign from that given in Tables I and II. The relative personal equations of the observers have also been applied to the observations of each observer to reduce to the mean observer in each case. The values used were taken from a preliminary investigation. The results of a definitive investigation are slightly different, but as the observations by the two observers of a party were, in general, fairly evenly divided, the effect on the result is immaterial. There was evidently a progressive change in the relative personal equation between LITTELL and MALLISON, and there seems to have been a rather marked change about December 5. At that time a small handle was placed on the milled head by which the hand control was operated in order that the observer might follow on the star by a continuous motion, and it is possible that this slight change in the method of observing may have produced this rather sudden, though small, change in the relative personal equation.

The following are the final values of corrections for personal equation to reduce each observer to the mean of the two observers at a station, the signs being applicable to clock corrections:

TABLE VII.—*Corrections for Relative Personal Equations of Astronomical Observers.*

	Period I.				Period II.	
	^s +0.001 ^s ±0.004		^s ±0.004		^s -0.004 ^s ±0.002	^s ±0.002
HILL	^s +0.001		^s ±0.004		^s -0.004	^s ±0.002
MAGRUDER	^s -0.001		^s ±0.004		^s +0.004	^s ±0.002
	To December 4.		After December 5.			
	^s -0.006 ^s ±0.002	^s ±0.002	^s +0.008 ^s ±0.003	^s ±0.003	^s +0.016 ^s ±0.003	^s ±0.003
LITTELL	^s -0.006	^s ±0.002	^s +0.008	^s ±0.003	^s +0.016	^s ±0.003
MALLISON	^s +0.006	^s ±0.002	^s -0.008	^s ±0.003	^s -0.016	^s ±0.003

Some time after their return to Washington Messrs. LITTELL and HILL made observations on three nights to determine their relative personal equations. The resulting difference of clock correction, was—

$$L - H = -0^s.025 \pm 0^s.005.$$

Table VIII gives the clock stars used, with the right ascensions from the Preliminary General Catalogue of Boss for 1900.0. The approximate zenith distances of the stars are given for the stations at which they were observed. For convenience in use, those stars whose apparent positions are in the American Ephemeris and Nautical Almanac are designated by the names there used and the others are designated by their numbers in Boss's catalogue. The last two columns give the number of times the star was observed and the mean correction to the right ascension of Boss as deduced from these observations. These corrections have not been used in this work. Their effect, if used, was tested and found to be very small.

TABLE VIII.—*List of the Clock Stars.*

Name.	Mag.	R. A. 1900.0	Decl. 1900.0	Z. D. Washing- ton.	Z. D. Paris.	No. Obs.	$\Delta\alpha$
		^h ^m ^s	[°] ['] ^{''}	[°] ['] ^{''}	[°] ['] ^{''}		^s
π Pegasi.....	4.3	22 5 32.710	+32 41.2	S 6 10	.. ..	2	-0.005
ζ Cephei.....	3.6	7 23.029	+57 42.5	.. ..	N 8 56	1	+0.070
α Lacertæ.....	3.8	27 10.218	+49 46.1	N 10 55	N 1 0	4	+0.002
10 Lacertæ.....	5.0	34 46.369	+38 31.8	S 0 19	S 10 14	10	-0.005
μ Pegasi.....	3.7	45 10.553	+24 4.4	S 14 46	.. ..	8	-0.025
Boes 5887.....	5.6	45 38.613	+55 22.3	.. ..	N 6 37	4	+0.068
α Andromedæ.....	3.7	22 57 19.113	+41 47.3	N 2 57	S 6 58	13	+0.012
Boes 5975.....	4.6	23 7 58.015	+48 51.6	N 10 1	N 0 6	19	-0.019
Boes 6008.....	6.0	16 3.557	+37 38.2	S 1 12	S 11 7	11	+0.023
Boes 6049.....	5.3	26 22.232	+38 41.2	S 0 9	S 10 4	10	+0.026
ϵ Andromedæ.....	4.3	33 13.775	+42 42.9	N 3 52	S 6 3	9	+0.038
ϕ Andromedæ.....	5.1	41 4.608	+45 51.9	N 7 1	S 2 54	18	-0.037
Boes 6148.....	5.6	52 5.969	+55 9.0	.. ..	N 6 23	9	-0.019
Boes 6150.....	4.8	23 52 39.703	+24 35.1	S 14 15	.. ..	11	+0.045
α Andromedæ.....	2.0	0 3 13.032	+28 32.3	S 10 18	.. ..	16	-0.021
β Cassiopeia.....	2.2	3 50.304	+58 35.9	.. ..	N 9 50	10	+0.016
Boes 43.....	4.5	11 51.933	+38 7.6	S 0 43	S 10 38	24	-0.028
Boes 82.....	5.3	22 51.130	+43 50.5	N 5 0	S 4 55	23	-0.020
δ Andromedæ.....	3.4	33 58.727	+30 18.8	S 8 32	.. ..	22	-0.018
α Cassiopeia.....	var.	34 49.746	+55 59.3	.. ..	N 7 14	12	+0.022
Boes 175.....	4.6	0 44 17.786	+40 32.1	N 1 41	S 8 14	7	+0.039
μ Cassiopeia.....	5.4	1 1 36.812	+54 25.8	.. ..	N 5 40	6	+0.082
β Andromedæ.....	2.1	4 7.850	+35 5.4	S 3 45	.. ..	22	-0.015
Boes 298.....	5.2	13 47.285	+57 42.4	.. ..	N 8 57	8	-0.049
ν Piscium.....	4.8	13 58.086	+26 44.3	S 12 6	.. ..	21	+0.011
Boes 321.....	5.1	21 40.188	+44 53.4	N 6 3	S 3 52	29	+0.024
ν Andromedæ.....	4.2	30 55.475	+40 54.3	N 2 3	S 7 52	31	+0.031
Boes 412.....	5.7	45 25.072	+54 39.1	.. ..	N 5 53	10	-0.059
α Trianguli.....	3.4	47 22.739	+29 5.5	S 9 46	.. ..	26	-0.023
γ Andromedæ.....	2.1	1 57 45.496	+41 51.0	N 3 0	S 6 55	45	-0.007
β Trianguli.....	3.0	2 3 35.443	+34 30.9	S 4 20	.. ..	30	-0.012
6 Persei.....	5.5	6 57.038	+50 36.1	.. ..	N 1 50	4	+0.035
γ Trianguli.....	4.1	11 22.005	+33 23.1	S 5 28	.. ..	28	+0.009
Boes 534.....	5.3	15 22.903	+55 23.3	.. ..	N 6 37	6	-0.017
Boes 552.....	6.5	21 9.044	+50 7.4	.. ..	N 1 21	6	+0.057
Boes 555.....	5.9	21 32.177	+31 21.1	S 7 30	.. ..	28	+0.035
Boes 610.....	5.1	35 56.022	+39 46.3	N 0 55	S 9 0	45	+0.039
η Persei.....	4.0	43 23.881	+55 28.8	.. ..	N 6 42	8	0.000
41 Arietis.....	3.5	44 5.733	+26 50.9	S 12 1	.. ..	35	+0.008
Boes 672.....	5.7	2 53 2.571	+46 49.2	N 7 57	S 1 58	26	-0.060
Boes 713.....	4.0	3 2 44.890	+44 28.7	N 5 37	S 4 18	35	+0.010
Boes 740.....	5.5	11 3.460	+43 39.5	N 4 47	S 5 8	36	+0.036
α Persei.....	1.7	17 10.820	+49 30.3	.. ..	N 0 43	8	+0.022
Boes 774.....	5.9	18 14.360	+33 10.9	S 5 41	.. ..	31	+0.021
Boes 817.....	4.4	29 22.851	+47 51.6	N 8 59	S 0 56	41	-0.057
ν Persei.....	3.9	38 23.857	+42 15.8	N 3 23	S 6 32	37	-0.012
ζ Persei.....	2.8	47 50.657	+31 35.2	S 7 18	.. ..	28	-0.020
Boes 900.....	5.5	49 10.113	+50 24.3	.. ..	N 1 37	7	+0.045
Boes 938.....	4.4	3 59 7.899	+50 4.8	.. ..	N 1 17	9	-0.001
Boes 944.....	5.3	4 0 49.400	+28 43.9	S 10 9	.. ..	28	+0.013
Boes 970.....	4.9	8 4.840	+40 13.8	N 1 21	S 8 34	24	-0.002
Boes 1003.....	4.9	14 19.082	+46 15.6	.. ..	S 2 33	5	+0.006
Boes 1030.....	5.4	19 44.264	+31 12.8	S 7 40	.. ..	29	-0.009
Boes 1074.....	4.4	29 45.610	+41 3.6	N 2 10	S 7 45	46	-0.006
4 Camelopardalis.....	5.4	39 40.249	+56 34.8	.. ..	N 7 46	11	+0.035
Boes 1129.....	5.9	42 48.182	+31 15.8	S 7 38	.. ..	35	+0.004
ϵ Aurigæ.....	2.8	4 50 28.813	+33 0.5	S 5 53	.. ..	1	-0.020
Boes 1222.....	5.8	5 3 16.017	+46 50.3	N 7 56	S 1 59	42	+0.028
λ Aurigæ.....	4.8	12 6.333	+40 0.6	N 1 6	S 8 49	43	+0.015
Boes 1311.....	5.4	21 1.092	+34 23.4	S 4 31	S 14 26	42	-0.014
Boes 1348.....	6.0	28 22.724	+54 21.7	.. ..	N 5 32	14	-0.037
Boes 1369.....	5.9	30 54.115	+26 51.7	S 12 3	.. ..	27	-0.008
α Aurigæ.....	5.7	38 9.172	+49 47.0	N 10 52	N 0 57	41	-0.005
Boes 1452.....	5.3	46 0.413	+59 51.9	.. ..	N 11 2	13	-0.044
Boes 1457.....	4.7	47 2.525	+27 35.3	S 11 20	.. ..	32	-0.038
Boes 1498.....	6.3	5 56 5.402	+42 54.9	N 4 0	S 5 55	18	0.000
Boes 1552.....	5.8	6 6 41.608	+60 1.6	.. ..	N 11 11	12	-0.057
Boes 1565.....	4.5	9 0.372	+29 32.1	S 9 23	.. ..	24	+0.007
μ Geminorum.....	3.0	16 54.661	+22 33.9	S 16 22	.. ..	32	-0.002
Boes 1608.....	5.5	6 18 5.123	+58 28.3	.. ..	N 9 38	28	-0.026

TABLE VIII.—*List of the Clock Stars—Continued.*

Name.	Mag.	R. A. 1900.0	Decl. 1900.0	Z. D. Washing- ton.	Z. D. Paris.	No. Obs.	$\Delta\alpha$
		h m s	° ' "	° ' "	° ' "		"
51 Aurigæ.....	5.9	6 31 43.796	+39 28.7	N 0 33	S 9 22	51	+0.043
ψ^5 Aurigæ.....	5.6	39 31.940	+43 40.6	N 4 45	S 5 10	57	-0.003
θ Geminorum.....	3.6	46 11.932	+34 4.9	S 4 51	.....	34	-0.019
15 Lyncis.....	4.5	6 48 37.153	+58 33.2	.....	N 9 42	20	-0.040
Boss 1840.....	4.5	7 4 46.525	+30 24.6	S 8 32	.....	11	+0.030
Boss 1846.....	5.8	5 35.669	+51 35.7	.....	N 2 44	15	-0.045
Boss 1897.....	5.8	14 3.207	+45 24.8	N 6 28	S 3 27	23	-0.004
Boss 1948.....	5.5	22 20.505	+49 52.7	.....	N 1 1	13	+0.059
ρ Geminorum.....	4.3	22 40.818	+31 59.0	S 6 58	.....	34	+0.015
Boss 2001.....	5.1	32 38.375	+34 48.8	S 4 8	.....	26	-0.021
24 Lyncis.....	5.0	34 32.907	+58 56.7	.....	N 10 5	16	-0.041
26 Lyncis.....	5.8	47 25.928	+47 49.4	N 8 52	S 1 3	45	-0.008
χ Geminorum.....	5.2	7 57 22.656	+28 4.5	S 10 53	.....	28	-0.002
27 Lyncis.....	4.9	8 0 56.252	+51 47.7	.....	N 2 55	17	+0.005
31 Lyncis.....	4.4	15 59.490	+43 30.5	N 4 33	S 5 22	44	-0.014
Groombridge 1450...	6.2	26 25.024	+38 21.6	S 0 36	S 10 32	39	+0.032
Boss 2306.....	5.6	34 6.534	+46 11.1	N 7 13	S 2 42	37	-0.003
Boss 2368.....	5.3	45 14.311	+44 5.9	N 5 8	S 4 47	1	-0.120
Boss 2423.....	5.9	56 40.955	+54 40.7	.....	N 5 47	17	-0.001
Boss 2426.....	5.6	8 56 53.566	+24 50.8	S 14 8	.....	21	0.000
Boss 2465.....	5.4	9 7 15.921	+43 37.8	N 4 39	S 5 16	38	+0.007
40 Lyncis.....	3.3	14 57.899	+34 48.9	S 4 10	S 14 5	39	+0.014
Boss 2550.....	4.5	26 0.993	+23 24.5	S 15 34	.....	12	-0.008
Boss 2601.....	5.6	35 48.706	+40 12.8	N 1 14	S 8 41	35	+0.059
ν Ursæ Majoris.....	3.8	43 52.972	+59 30.6	.....	N 10 36	14	-0.054
μ Leonis.....	4.1	47 4.669	+26 28.7	S 12 30	.....	22	+0.013
Boss 2673.....	5.8	52 58.878	+57 17.4	.....	N 8 23	12	-0.008
Boss 2681.....	5.8	9 55 14.867	+32 24.9	S 6 34	.....	21	-0.002
λ Ursæ Majoris.....	3.4	10 11 4.094	+43 24.8	N 4 26	S 5 30	33	+0.009
Boss 2828.....	5.8	32 53.657	+54 11.4	.....	N 5 17	7	-0.077
Boss 2829.....	4.9	33 5.666	+32 29.7	S 6 30	.....	19	-0.002
Boss 2898.....	5.5	47 31.245	+55 7.0	.....	N 6 12	5	+0.030
46 Leonis Minoris.....	3.9	47 43.269	+34 45.2	S 4 14	.....	17	+0.008
Boss 2926.....	5.2	10 55 14.312	+39 44.9	N 0 45	S 9 10	18	-0.021
ψ Ursæ Majoris.....	3.0	11 4 2.627	+45 2.5	N 6 3	S 3 52	18	-0.026
Boss 2980.....	6.1	11 3.834	+50 1.3	.....	N 1 7	2	+0.055
ν Ursæ Majoris.....	3.5	13 4.744	+33 38.4	S 5 21	.....	14	-0.001
Boss 3023.....	5.4	23 41.101	+39 53.2	N 0 54	S 9 2	5	+0.034
Boss 3063.....	5.7	33 0.962	+44 10.8	N 5 11	S 4 44	5	+0.010
χ Ursæ Majoris.....	3.9	40 46.312	+48 20.0	N 9 20	S 0 35	14	-0.015
Groombridge 1830...	6.7	47 12.990	+38 26.2	S 0 35	.....	5	-0.010
γ Ursæ Majoris.....	2.3	48 34.380	+54 15.0	.....	N 5 20	4	+0.015
Boss 3143.....	5.2	11 57 2.240	+43 36.0	N 4 36	S 5 19	8	-0.011
δ Ursæ Majoris.....	3.3	12 10 28.743	+57 35.3	.....	N 8 40	1	-0.060
Boss 3194.....	5.2	11 17.011	+24 30.1	S 14 30	.....	3	+0.040
Boss 3242.....	4.6	21 57.296	+28 49.5	S 10 10	.....	3	+0.053
8 Canum Venaticorum.....	4.4	28 59.705	+41 54.0	N 2 54	.....	3	+0.033
Boss 3322.....	5.6	12 40 25.950	+45 59.2	N 6 59	S 2 56	1	+0.080

Table IX gives the results of the observations for clock corrections. There is given for each observation the mean of the contact times as obtained from the records made on the chronograph by the self-registering right ascension micrometer. In general this mean is based on 20 contact times, 10 with the instrument in a given position and 10 with it in the reversed position. For Paris I each of these times has been corrected by $-5^{\text{h}}00$, as there was apparently a misunderstanding regarding the identification of the zero second of the RIEFLER clock. The instrumental level is the mean of two complete determinations, one before and one after reversal, and the instrumental azimuth is based upon the mean of five micrometer readings on the meridian mark before and the same number after reversal. The corrections for contact are the corrections for duration of contact explained on page E 16. In general, the quantity given in this column is the sum of the correction for contact

and of the correction for diurnal aberration, but in the case of the azimuth stars for Paris I and for Washington II, the chronograph record was read to the middle of the registered transit signal, and therefore for these stars no correction for duration of contact was necessary, and this column contains only the correction for diurnal aberration. The corrections for level and azimuth are based on the values given in the preceding columns for the corresponding instrumental errors. The apparent right ascension gives the seconds of the apparent right ascension based on Boss. The results of the observations of circumpolar stars for the azimuth of the instrument are also included in this table. The stars used for this purpose were, in general, between declination $+80^{\circ}$ and $+86^{\circ}$.

The designations of the observers are as follows:

H. = G. A. HILL. Mg. = C. W. MAGRUDER.
L. = F. B. LITTELL. M. = W. T. MALLISON.

TABLE IX.—*Observations for Clock Corrections.*

WASHINGTON I, 1913.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
October 27, L.										
1	1 H. Draconis s. p.	24	h m s 21 25 22.60	s 0.000	s +0.404	s +0.312	s 0.000	s	s 54.99	s
2	30 H. Camelopardalis s. p.	26	22 21 7.46	+0.042	+0.429	+0.369	-0.182	.....	40.39	.....
3	10 Lacertæ.....	20	22 35 54.22	+0.029	+0.442	+0.022	+0.037	.....	23.99	.....
4	δ Andromedæ.....	20	0 35 14.29	+0.031	+0.421	+0.020	+0.036	.....	44.00	.....
5	32 H. Camelopardalis s. p.	24	0 48 50.44	+0.024	+0.407	+0.422	-0.122	.....	23.63	.....
6	β Andromedæ.....	20	1 5 25.64	+0.014	+0.371	+0.021	+0.017	.....	55.27	.....
October 28, M.										
7	1 H. Draconis s. p.	6	21 25 24.82	+0.023*	+0.165	+0.312	-0.081	.....	55.13	.....
8	30 H. Camelopardalis s. p.	16	22 21 10.15	+0.008	+0.209	+0.369	-0.035	.....	40.53	.....
9	μ Pegasi.....	20	22 46 21.98	-0.010	+0.141	+0.019	-0.011	+0.039	51.13	-30.90
10	o Andromedæ.....	20	22 58 28.54	-0.003	+0.152	+0.023	-0.004	-0.010	57.75	-30.80
11	Boss 5975.....	20	23 9 7.14	+0.007	+0.146	+0.026	+0.010	-0.039	36.50	-30.64
12	ψ Andromedæ.....	20	23 42 17.30	+0.011	+0.087	+0.024	+0.016	-0.015	46.37	-30.96
13	Boss 6150.....	20	23 53 53.70	+0.009	+0.116	+0.019	+0.010	+0.031	22.75	-31.01
14	α Andromedæ.....	20	0 4 27.73	+0.006	+0.051	+0.019	+0.007	+0.010	56.72	-31.05
15	Boss 82.....	20	0 24 7.59	-0.007	+0.167	+0.024	-0.010	-0.020	36.52	-31.06
16	δ Andromedæ.....	20	0 35 15.07	-0.017	+0.190	+0.020	-0.020	+0.033	44.00	-31.10
17	β Andromedæ.....	20	1 5 26.22	-0.017	+0.194	+0.021	-0.021	+0.016	55.28	-30.96
October 28, L.										
18	υ Piscium.....	20	1 15 15.61	-0.017	+0.228	+0.019	-0.019	+0.054	44.71	-30.95
19	Boss 321.....	20	1 23 1.85	-0.015	+0.215	+0.024	-0.021	-0.032	30.80	-31.02
20	υ Andromedæ.....	20	1 32 16.33	-0.012	+0.217	+0.023	-0.016	-0.010	45.19	-31.14
21	α Trianguli.....	20	1 48 41.98	-0.006	+0.257	+0.019	-0.007	+0.050	11.12	-30.92
22	γ Andromedæ.....	20	1 59 8.62	-0.015	+0.265	+0.023	-0.020	-0.018	37.52	-31.09
23	β Trianguli.....	20	2 4 56.81	-0.024	+0.290	+0.021	-0.029	+0.027	25.91	-30.92
24	γ Trianguli.....	20	2 12 43.40	-0.020	+0.310	+0.020	-0.024	+0.035	12.44	-30.99
25	Boss 555.....	20	2 22 53.38	-0.024	+0.275	+0.020	-0.028	+0.042	22.43	-30.98
26	Boss 610.....	20	2 37 20.68	-0.021	+0.237	+0.022	-0.027	-0.005	49.54	-31.13
27	41 Arietis.....	20	2 45 26.66	-0.015	+0.238	+0.019	-0.016	+0.056	55.72	-31.00
28	Boss 672.....	20	2 54 31.05	-0.025	+0.211	+0.025	-0.036	-0.043	0.09	-30.91
29	Boss 713.....	20	3 4 13.08	-0.036	+0.184	+0.024	-0.050	-0.025	42.06	-30.97
30	Boss 740.....	20	3 12 31.55	-0.051	+0.166	+0.024	-0.070	-0.019	0.49	-31.00
31	Boss 774.....	20	3 19 38.47	-0.054	+0.128	+0.020	-0.064	+0.015	7.41	-31.03
32	Boss 817.....	20	3 30 54.08	-0.030	+0.133	+0.025	-0.044	-0.031	23.10	-30.93
33	υ Persei.....	20	3 39 52.56	-0.058	+0.117	+0.023	-0.078	-0.009	21.47	-31.03
34	ζ Persei.....	20	3 49 15.01	-0.083	+0.131	+0.020	-0.097	+0.020	43.99	-30.96
35	Groombridge 750.....	12	4 9 50.54	-0.054	+0.123	+0.209	-0.457	.....	18.01	.....
36	Boss 1074.....	20	4 31 15.50	-0.040	+0.100	+0.023	-0.053	-0.005	44.32	-31.15
37	Boss 1129.....	20	4 44 13.54	-0.037	+0.106	+0.020	-0.043	+0.017	42.49	-31.04
38	ε Ursæ Minoris s. p.	24	4 55 8.27	-0.069	+0.100	+0.331	+0.262	.....	38.85	.....

* Level adjusted.

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
October 29, L.										
1	π Pegasi.....	20	h m s 22 6 41.28	—0.124	+0.362	+0.020	—0.147	+0.046	9.82	—31.38
2	30 H. Camelopardalis s.p.	8	22 21 9.10	—0.001*	+0.320	+0.369	+0.004	.....	40.67	.....
3	10 Lacertæ.....	20	22 35 55.34	—0.007	+0.368	+0.022	—0.009	+0.003	23.96	—31.40
4	μ Pegasi.....	20	22 46 22.45	—0.019	+0.334	+0.019	—0.020	+0.094	51.12	—31.42
5	α Andromedæ.....	20	22 58 29.12	—0.007	+0.290	+0.023	—0.009	—0.020	57.73	—31.38
6	Boss 5975.....	20	23 9 7.91	+0.016	+0.272	+0.026	+0.024	—0.072	36.48	—31.41
7	Boss 6008.....	20	23 17 15.56	+0.029	+0.272	+0.021	+0.037	+0.007	44.13	—31.49
8	39 H. Cephei.....	12	23 28 25.71	+0.029	+0.234	+0.308	+0.352	.....	51.49	.....
9	ψ Andromedæ.....	20	23 42 17.77	+0.023	+0.195	+0.024	+0.033	—0.034	46.36	—31.43
10	Boss 6150.....	20	23 53 54.13	+0.019	+0.190	+0.019	+0.020	+0.051	22.74	—31.48
11	α Andromedæ.....	20	0 4 28.02	+0.034	+0.252	+0.019	+0.038	+0.051	56.72	—31.41
12	δ Andromedæ.....	20	0 35 15.28	+0.039	+0.220	+0.020	+0.045	+0.038	44.00	—31.38
13	β Andromedæ.....	20	1 5 26.68	+0.031	+0.209	+0.021	+0.038	+0.017	55.28	—31.48
14	ν Piscium.....	20	1 15 16.08	+0.011	+0.131	+0.019	+0.012	+0.031	44.71	—31.43
October 29, M.										
15	Boss 321.....	20	1 23 2.44	—0.008	+0.131	+0.024	—0.011	—0.020	30.81	—31.62
16	ν Andromedæ.....	20	1 32 16.34	—0.009	+0.138	+0.023	—0.012	—0.006	45.20	[—31.14]
17	α Trianguli.....	20	1 48 42.47	+0.003	+0.174	+0.019	+0.003	+0.034	11.12	—31.41
18	γ Andromedæ.....	20	1 59 8.88	+0.003	+0.234	+0.023	+0.004	—0.016	37.53	—31.36
19	β Trianguli.....	20	2 4 57.32	—0.005	+0.216	+0.021	—0.006	+0.020	25.92	—31.44
20	γ Trianguli.....	20	2 12 43.83	+0.009	+0.218	+0.020	+0.011	+0.025	12.45	—31.44
21	Boss 555.....	20	2 22 53.90	+0.015	+0.180	+0.020	+0.017	+0.028	22.44	—31.52
22	Boss 610.....	20	2 37 20.97	+0.011	+0.066	+0.022	+0.014	—0.001	49.55	—31.46
23	41 Arietis.....	20	2 45 27.23	+0.017	+0.083	+0.019	+0.019	+0.019	55.73	—31.56
24	47 H. Cephei.....	24	2 55 11.19	+0.020	+0.173	+0.090	+0.081	.....	39.26	.....
25	Boss 713.....	20	3 4 13.74	+0.024	+0.132	+0.024	+0.034	—0.018	42.08	—31.70
26	Boss 817.....	20	3 30 54.50	+0.007	+0.114	+0.025	+0.010	—0.027	23.12	—31.39
27	ζ Persei.....	20	3 49 15.54	+0.039	+0.119	+0.020	+0.045	+0.018	44.02	—31.60
28	Boss 944.....	20	4 2 13.41	+0.031	+0.206	+0.019	+0.035	+0.041	41.87	—31.64
October 31, L.										
29	α Andromedæ.....	20	22 58 30.17	+0.029*	+0.386	+0.023	+0.039	—0.026	57.70	—32.51
30	Boss 5975.....	20	23 9 8.83	+0.023	+0.267	+0.026	+0.034	—0.071	36.46	—32.36
31	39 H. Cephei.....	20	23 28 26.97	+0.017	+0.298	+0.308	+0.206	.....	51.08	.....
32	Boss 6150.....	20	23 53 55.16	—0.005	+0.291	+0.019	—0.005	+0.079	22.74	—32.51
33	α Andromedæ.....	20	0 4 29.12	—0.023	+0.278	+0.019	—0.026	+0.056	56.71	—32.46
34	Boss 43.....	20	0 13 8.52	—0.028	+0.281	+0.022	—0.036	+0.004	36.05	—32.46
35	Boss 82.....	20	0 24 9.03	—0.037	+0.261	+0.024	—0.051	—0.032	36.52	—32.45
36	δ Andromedæ.....	20	0 35 16.42	—0.046	+0.245	+0.020	—0.053	+0.042	43.99	—32.44
37	32 H. Camelopardalis s.p.	22	0 48 54.30	—0.058	+0.237	+0.422	+0.295	.....	23.91	.....
38	ν Piscium.....	20	1 15 17.30	—0.084	+0.237	+0.019	—0.092	+0.056	44.71	—32.57
39	Boss 321.....	20	1 23 3.48	—0.092	+0.187	+0.024	—0.129	—0.028	30.83	—32.52
October 31, M.										
40	ν Andromedæ.....	20	1 32 17.90	—0.094	+0.131	+0.023	—0.124	—0.006	45.21	—32.58
41	α Trianguli.....	20	1 48 43.76	—0.108	+0.249	+0.019	—0.122	+0.048	11.14	—32.56
42	γ Andromedæ.....	20	1 59 10.19	—0.135	+0.272	+0.023	—0.181	—0.019	37.54	—32.47
43	β Trianguli.....	20	2 4 58.62	—0.143	+0.249	+0.021	—0.173	+0.023	25.93	—32.56
44	γ Trianguli.....	20	2 12 45.07	—0.121	+0.334	+0.020	—0.144	+0.038	12.47	—32.51
45	Boss 610.....	20	2 37 22.48	—0.136	+0.226	+0.022	—0.177	—0.005	49.59	—32.73
46	41 Arietis.....	20	2 45 28.30	—0.138	+0.235	+0.019	—0.151	+0.055	55.76	—32.46
47	47 H. Cephei.....	24	2 55 13.18	—0.154	+0.264	+0.090	—0.621	.....	39.35	.....
48	Boss 713.....	20	3 4 14.93	—0.161	+0.237	+0.024	—0.225	—0.032	42.13	—32.57
49	Boss 740.....	20	3 12 33.34	—0.157	+0.235	+0.024	—0.217	—0.027	0.56	—32.56
November 1, M.										
50	π Pegasi.....	20	22 6 42.67	—0.038	+0.304	+0.020	—0.045	+0.039	9.77	—32.91
51	30 H. Camelopardalis s.p.	30	22 21 11.84	—0.080	+0.196	+0.369	+0.347	.....	41.17	.....
52	α Lacertæ.....	20	22 28 17.52	—0.080	+0.145	+0.026	—0.122	—0.043	44.58	—32.80
53	10 Lacertæ.....	20	22 35 56.82	—0.059	+0.088	+0.022	—0.076	+0.001	23.91	—32.86
54	μ Pegasi.....	20	22 46 24.00	—0.042	+0.193	+0.019	—0.044	+0.054	51.08	—32.95
55	Boss 5975.....	20	23 9 9.41	—0.027	+0.189	+0.026	—0.040	—0.050	36.45	—32.90
56	Boss 6008.....	20	23 17 17.02	—0.018	+0.219	+0.021	—0.023	+0.006	44.11	—32.91
57	ϵ Andromedæ.....	20	23 34 28.01	—0.019	+0.241	+0.023	—0.026	—0.022	55.03	—32.96

* Level adjusted.

TABLE IX.—*Observations for Clock Corrections—Continued.*

WASHINGTON I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
1	α Andromedæ.....	20	^h 0 ^m 4 ^s 29.50	+0.051	+0.176	+0.019	+0.057	+0.036	56.70	-32.91
2	Boss 43.....	20	0 13 8.93	+0.042	+0.173	+0.022	+0.053	+0.003	36.04	-32.97
3	Boss 82.....	20	0 24 9.42	+0.038	+0.177	+0.024	+0.053	-0.021	36.52	-32.96
4	δ Andromedæ.....	20	0 35 16.94	+0.031	+0.169	+0.020	+0.036	+0.029	43.98	-33.04
5	32 H. Camelopardalis s. p.	26	0 48 55.00	+0.025	+0.178	+0.422	-0.127	.....	23.98	.....
6	β Andromedæ.....	20	1 5 28.27	+0.029	+0.157	+0.021	+0.035	+0.013	55.28	-33.06
7	ν Piscium.....	20	1 15 17.49	+0.030	+0.131	+0.019	+0.033	+0.031	44.72	-32.85
8	Boss 321.....	20	1 23 3.82	+0.029	+0.150	+0.024	+0.041	-0.022	30.84	-33.02
November 1, L.										
9	ν Andromedæ.....	20	1 32 18.19	+0.029	+0.166	+0.023	+0.038	-0.008	45.21	-33.03
10	α Trianguli.....	20	1 48 44.05	+0.026	+0.190	+0.019	+0.029	+0.037	11.15	-32.98
11	γ Andromedæ.....	20	1 59 10.55	+0.027	+0.152	+0.023	+0.036	-0.011	37.55	-33.05
12	γ Trianguli.....	20	2 12 45.49	+0.029	+0.114	+0.020	+0.035	+0.013	12.48	-33.08
13	Boss 555.....	20	2 22 55.51	+0.025	+0.150	+0.020	+0.029	+0.023	22.49	-33.09
14	Boss 610.....	20	2 37 22.66	+0.023	+0.151	+0.022	+0.030	-0.003	49.61	-33.10
15	41 Arietis.....	20	2 45 28.78	+0.029	+0.138	+0.019	+0.032	+0.032	55.77	-33.09
16	47 H. Cephei.....	12	2 55 12.72	+0.024	+0.147	+0.090	+0.097	.....	39.40	.....
17	Boss 713.....	20	3 4 15.27	+0.025	+0.152	+0.024	+0.035	-0.021	42.16	-33.15
18	Boss 740.....	20	3 12 33.70	+0.029	+0.140	+0.024	+0.040	-0.016	0.59	-33.16
19	Boss 774.....	20	3 19 40.50	+0.027	+0.164	+0.020	+0.032	+0.020	7.50	-33.07
20	Boss 817.....	20	3 30 56.20	+0.030	+0.194	+0.025	+0.044	-0.045	23.22	-33.00
21	ν Persei.....	20	3 39 54.59	+0.034	+0.180	+0.023	+0.046	-0.014	21.56	-33.09
22	ζ Persei.....	20	3 49 17.07	+0.033	+0.203	+0.020	+0.038	+0.030	44.08	-33.08
23	Boss 970.....	20	4 9 35.70	+0.038	+0.162	+0.022	+0.050	-0.005	2.66	-33.11
24	Boss 1030.....	20	4 21 11.40	+0.041	+0.087	+0.020	+0.048	+0.014	38.35	-33.13
25	Boss 1074.....	20	4 31 17.50	+0.038	+0.081	+0.023	+0.050	-0.004	44.45	-33.12
26	Boss 1129.....	20	4 44 15.67	+0.043	+0.121	+0.020	+0.050	+0.019	42.62	-33.14
27	ϵ Ursæ Minoris s. p.	22	4 55 11.02	+0.051	+0.121	+0.331	-0.194	.....	38.28	.....
November 3, L.										
28	30 H. Camelopardalis s. p.	18	22 21 13.46	+0.005	+0.272	+0.369	-0.022	.....	41.56	.....
29	α Lacertæ.....	20	22 28 18.54	-0.001	+0.249	+0.026	-0.002	-0.073	44.54	-33.95
30	10 Lacertæ.....	20	22 35 57.81	+0.001	+0.272	+0.022	+0.001	+0.002	23.88	-33.95
31	μ Pegasi.....	20	22 46 24.92	+0.005	+0.254	+0.019	+0.005	+0.071	51.06	-33.96
32	σ Andromedæ.....	20	22 58 31.63	+0.008	+0.230	+0.023	+0.011	-0.016	57.66	-33.99
33	Boss 5975.....	20	23 9 10.36	+0.018	+0.227	+0.026	+0.027	-0.060	36.43	-33.92
34	α Andromedæ.....	20	0 4 30.64	+0.032	+0.146	+0.019	+0.036	+0.030	56.69	-34.03
35	Boss 43.....	20	0 13 9.95	+0.035	+0.125	+0.022	+0.045	+0.002	36.05	-33.97
36	Boss 82.....	20	0 24 10.42	+0.048	+0.099	+0.024	+0.066	-0.012	36.52	-33.98
37	δ Andromedæ.....	20	0 35 17.93	+0.060	+0.096	+0.020	+0.069	+0.017	43.98	-34.06
38	32 H. Camelopardalis s. p.	26	0 48 57.02	+0.054	+0.112	+0.422	-0.274	.....	24.15	.....
39	β Andromedæ.....	20	1 5 29.22	+0.033	+0.098	+0.021	+0.040	+0.008	55.28	-34.01
40	ν Piscium.....	20	1 15 18.69	+0.027	+0.124	+0.019	+0.030	+0.029	44.72	-34.05
41	Boss 321.....	20	1 23 4.81	+0.043	+0.134	+0.024	+0.060	-0.020	30.86	-34.01
42	ν Andromedæ.....	20	1 32 19.22	+0.050	+0.119	+0.023	+0.066	-0.006	45.21	-34.09
November 3, M.										
43	α Trianguli.....	20	1 48 44.99	+0.045	+0.092	+0.019	+0.051	+0.018	11.16	-33.92
November 4, M.										
44	30 H. Camelopardalis s. p.	30	22 21 15.41	-0.017	+0.092	+0.369	+0.074	.....	41.77	.....
45	10 Lacertæ.....	20	22 35 58.36	-0.008	+0.077	+0.022	-0.010	+0.001	23.86	-34.51
46	μ Pegasi.....	20	22 46 25.41	-0.012	+0.110	+0.019	-0.013	+0.031	51.04	-34.41
47	σ Andromedæ.....	20	22 58 32.12	-0.007	+0.113	+0.023	-0.009	-0.008	57.64	-34.49
48	Boss 5975.....	20	23 9 10.84	-0.003	+0.069	+0.026	-0.004	-0.018	36.41	-34.43
49	Boss 6008.....	20	23 17 18.60	-0.005	+0.070	+0.021	-0.006	+0.002	44.09	-34.53
50	Boss 6049.....	20	23 27 38.12	-0.006	+0.085	+0.022	-0.008	0.000	3.57	-34.56
51	ψ Andromedæ.....	20	23 42 20.77	-0.004	+0.106	+0.024	-0.006	-0.019	46.29	-34.48
52	α Andromedæ.....	20	0 4 31.12	-0.005	+0.091	+0.019	-0.006	+0.018	56.69	-34.46
53	Boss 43.....	20	0 13 10.51	-0.007	+0.142	+0.022	-0.009	+0.002	36.05	-34.48
54	Boss 82.....	20	0 24 11.03	-0.003	+0.204	+0.024	-0.004	-0.025	36.52	-34.51
55	δ Andromedæ.....	20	0 35 18.40	+0.001	+0.149	+0.020	+0.001	+0.026	43.97	-34.48
56	32 H. Camelopardalis s. p.	26	0 48 57.46	+0.007	+0.104	+0.422	-0.036	.....	24.23	.....
57	β Andromedæ.....	20	1 5 29.76	+0.017	+0.153	+0.021	+0.021	+0.012	55.28	-34.53
58	ν Piscium.....	20	1 15 19.22	+0.011	+0.236	+0.019	+0.012	+0.055	44.72	-34.59
59	Boss 321.....	20	1 23 5.38	+0.010	+0.222	+0.024	+0.014	-0.033	30.86	-34.52
60	ν Andromedæ.....	20	1 32 19.84	+0.015	+0.200	+0.023	+0.020	-0.010	45.22	-34.65

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
November 4, L.										
1	α Trianguli.....	20	h m s 1 48 45.68	+0.012	+0.280	+0.019	+0.014	+0.054	11.16	-34.61
2	γ Andromedæ.....	20	1 59 12.21	+0.012	+0.270	+0.023	+0.016	-0.019	37.57	-34.66
3	β Trianguli.....	20	2 5 0.51	+0.005	+0.268	+0.021	+0.006	+0.025	25.96	-34.60
4	γ Trianguli.....	20	2 12 47.04	+0.007	+0.294	+0.020	+0.008	+0.034	12.50	-34.60
5	Boss 555.....	20	2 22 57.09	+0.016	+0.279	+0.020	+0.019	+0.043	22.54	-34.63
6	Boss 610.....	20	2 37 24.32	+0.009	+0.213	+0.022	+0.012	-0.004	49.67	-34.68
7	41 Arietis.....	20	2 45 30.36	0.000	+0.199	+0.019	0.000	+0.047	55.81	-34.62
8	Boss 672.....	20	2 54 34.84	-0.016	+0.223	+0.025	-0.023	-0.045	0.25	-34.55
9	Boss 740.....	20	3 12 35.35	-0.025	+0.220	+0.024	-0.034	-0.025	0.66	-34.65
10	Boss 774.....	20	3 19 42.17	-0.022	+0.218	+0.020	-0.026	+0.026	7.57	-34.62
11	Boss 817.....	20	3 30 57.90	-0.019	+0.193	+0.025	-0.028	-0.045	23.30	-34.55
12	ν Persei.....	20	3 39 56.27	-0.017	+0.199	+0.023	-0.023	-0.016	21.62	-34.63
13	ζ Persei.....	20	3 49 18.71	-0.029	+0.223	+0.020	-0.034	+0.033	44.14	-34.59
14	Boss 944.....	20	4 2 16.62	-0.026	+0.233	+0.019	-0.029	+0.046	42.04	-34.62
15	Boss 1030.....	20	4 21 12.99	-0.029	+0.230	+0.020	-0.034	+0.036	38.44	-34.57
16	Boss 1074.....	20	4 31 19.13	-0.010	+0.220	+0.023	-0.013	-0.011	44.56	-34.57
17	Boss 1129.....	20	4 44 17.28	-0.003	+0.222	+0.020	-0.003	+0.035	42.71	-34.62
18	ϵ Ursæ Minoris s. p.	24	4 55 10.90	-0.009	+0.214	+0.331	+0.034	.....	37.88	.....
November 5, L.										
19	30 H. Camelopardalis s. p.	20	22 21 14.38	-0.060	+0.264	+0.369	+0.260	.....	41.97	.....
20	10 Lacertæ.....	20	22 35 58.94	-0.054	+0.237	+0.022	-0.069	+0.002	23.85	-35.05
21	μ Pegasi.....	20	22 46 26.04	-0.060	+0.264	+0.019	-0.064	+0.074	51.03	-35.04
22	α Andromedæ.....	20	22 58 32.57	+0.070*	+0.228	+0.023	+0.094	-0.016	57.63	-35.04
23	Boss 5975.....	20	23 9 11.25	+0.079	+0.156	+0.026	+0.118	-0.041	36.36	-34.99
24	Boss 6049.....	20	23 27 38.52	+0.103	+0.201	+0.022	+0.132	+0.001	3.56	-35.12
25	ι Andromedæ.....	20	23 34 29.92	+0.101	+0.218	+0.023	+0.137	-0.020	54.98	-35.08
26	ψ Andromedæ.....	20	23 42 21.17	+0.107	+0.202	+0.024	+0.153	-0.036	46.27	-35.04
27	Boss 6150.....	20	23 53 57.66	+0.113	+0.197	+0.019	+0.120	+0.053	22.73	-35.12
28	α Andromedæ.....	20	0 4 31.63	+0.106	+0.206	+0.019	+0.119	+0.042	56.68	-35.13
29	Boss 43.....	20	0 13 10.91	+0.107	+0.213	+0.022	+0.136	+0.003	36.03	-35.04
30	Boss 82.....	20	0 24 11.37	+0.107	+0.199	+0.024	+0.148	-0.024	36.52	-35.00
31	δ Andromedæ.....	20	0 35 18.93	+0.105	+0.189	+0.020	+0.121	+0.033	43.97	-35.13
32	32 H. Camelopardalis s. p.	20	0 48 58.58	+0.125	+0.161	+0.422	-0.635	.....	24.33	.....
33	β Andromedæ.....	20	1 5 30.20	+0.138	+0.154	+0.021	+0.168	+0.012	55.28	-35.12
34	ν Piscium.....	20	1 15 19.64	+0.125	+0.157	+0.019	+0.137	+0.037	44.72	-35.11
35	Boss 321.....	20	1 23 5.79	+0.120	+0.112	+0.024	+0.169	-0.017	30.86	-35.11
36	ν Andromedæ.....	20	1 32 20.21	+0.126	+0.087	+0.023	+0.167	-0.004	45.22	-35.18
37	α Trianguli.....	20	1 48 46.22	+0.133	+0.104	+0.019	+0.150	+0.020	11.17	-35.24
November 5, M.										
38	γ Andromedæ.....	20	1 59 12.54	+0.040*	+0.066	+0.023	+0.054	-0.005	37.58	-35.03
39	β Trianguli.....	20	2 5 1.22	+0.040	+0.021	+0.021	+0.048	+0.002	25.97	-35.32
40	γ Trianguli.....	20	2 12 47.70	+0.038	+0.108	+0.020	+0.045	+0.012	12.51	-35.27
41	Boss 555.....	20	2 22 57.74	+0.041	+0.180	+0.020	+0.048	+0.028	22.54	-35.30
42	Boss 610.....	20	2 37 24.79	+0.053	+0.123	+0.022	+0.069	-0.003	49.67	-35.21
43	41 Arietis.....	20	2 45 30.84	+0.058	+0.110	+0.019	+0.064	+0.026	55.82	-35.13
44	47 H. Cephei.....	26	2 55 14.88	+0.054	+0.100	+0.090	+0.218	.....	39.55	.....
45	Boss 740.....	20	3 12 35.72	+0.053	+0.044	+0.024	+0.073	-0.005	0.67	-35.14
46	Boss 774.....	20	3 19 42.60	+0.046	+0.075	+0.020	+0.055	+0.009	7.58	-35.10
47	Boss 817.....	20	3 30 58.38	+0.044	+0.141	+0.025	+0.065	-0.033	23.32	-35.12
48	ν Persei.....	20	3 39 56.71	+0.048	+0.141	+0.023	+0.065	-0.011	21.64	-35.15
49	ζ Persei.....	20	3 49 19.18	+0.055	+0.193	+0.020	+0.064	+0.029	44.16	-35.13
50	Boss 944.....	20	4 2 17.06	+0.056	+0.224	+0.019	+0.063	+0.045	42.05	-35.14
51	Boss 970.....	20	4 9 37.84	+0.058	+0.213	+0.022	+0.076	-0.007	2.77	-35.16
52	Boss 1030.....	20	4 21 13.45	+0.060	+0.222	+0.020	+0.070	+0.035	38.46	-35.11
53	Boss 1074.....	20	4 31 19.64	+0.060	+0.207	+0.023	+0.080	-0.010	44.57	-35.16
54	Boss 1129.....	20	4 44 17.75	+0.059	+0.245	+0.020	+0.068	+0.038	42.73	-35.15
55	ϵ Ursæ Minoris s. p.	24	4 55 11.38	+0.065	+0.272	+0.331	-0.247	.....	37.77	.....
November 6, M.										
56	α Lacertæ.....	20	22 28 20.16	-0.018	+0.115	+0.026	-0.027	-0.034	44.47	-35.65
57	10 Lacertæ.....	20	22 35 59.38	-0.035	+0.142	+0.022	-0.045	+0.001	23.83	-35.53
58	μ Pegasi.....	20	22 46 26.51	-0.053	+0.133	+0.019	-0.056	+0.037	51.02	-35.49
59	α Andromedæ.....	20	22 58 33.30	-0.032	+0.092	+0.023	-0.043	-0.006	57.61	-35.66

* Level adjusted.

TABLE IX.—*Observations for Clock Corrections—Continued.*

WASHINGTON I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental. Corrections for—					App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
			h m s	s	s	s	s	s	s	s
1	Boss 5975.....	20	23 9 12.02	-0.017	+0.092	+0.026	-0.025	-0.024	36.36	-35.64
2	Boss 6008.....	20	23 17 19.69	-0.024	+0.044	+0.021	-0.030	+0.001	44.05	-35.63
3	Boss 6049.....	20	23 27 39.15	-0.032	+0.115	+0.022	-0.041	0.000	3.53	-35.60
4	Andromedæ.....	20	23 34 30.66	-0.023	+0.131	+0.023	-0.031	-0.012	54.97	-35.67
5	Andromedæ.....	20	23 42 21.84	-0.016	+0.108	+0.024	-0.023	-0.019	46.26	-35.56
6	Boss 6150.....	20	23 53 58.24	-0.012	+0.130	+0.019	-0.013	+0.035	22.72	-35.56
7	Boss 82.....	20	0 24 12.05	-0.016	+0.069	+0.024	-0.022	-0.008	36.51	-35.53
8	Andromedæ.....	20	0 35 19.55	-0.005	+0.078	+0.020	-0.006	+0.013	43.97	-35.61
9	H. Camelopardalis s. p.	32	0 48 58.70	+0.011	+0.155	+0.422	-0.056	.....	24.42	.....
10	Andromedæ.....	20	1 5 30.88	+0.011	+0.117	+0.021	+0.013	+0.009	55.28	-35.64
11	Piscium.....	20	1 15 20.22	+0.014	+0.217	+0.019	+0.015	+0.051	44.72	-35.58
12	Boss 321.....	20	1 23 6.49	+0.005	+0.313	+0.024	+0.007	-0.047	30.85	-35.62
13	Andromedæ.....	20	1 32 20.96	0.000	+0.256	+0.023	0.000	-0.012	45.22	-35.75
14	Trianguli.....	20	1 48 46.77	+0.005	+0.262	+0.019	+0.006	+0.051	11.17	-35.68
November 6, L.										
15	Andromedæ.....	20	1 59 13.26	+0.009	+0.266	+0.023	+0.012	-0.019	37.59	-35.69
16	Trianguli.....	20	2 5 1.47	+0.023	+0.280	+0.021	+0.028	+0.026	25.98	-35.57
17	Trianguli.....	20	2 12 48.08	+0.032	+0.289	+0.020	+0.038	+0.033	12.52	-35.65
18	Boss 555.....	20	2 22 58.17	+0.021	+0.283	+0.020	+0.024	+0.043	22.55	-35.71
19	Boss 610.....	20	2 37 25.23	+0.017	+0.259	+0.022	+0.022	-0.005	49.68	-35.59
20	Arietis.....	20	2 45 31.37	+0.017	+0.229	+0.019	+0.019	+0.054	55.83	-35.63
21	Boss 672.....	20	2 54 35.81	+0.012	+0.203	+0.025	+0.017	-0.041	0.27	-35.54
22	Boss 713.....	20	3 4 17.82	+0.021	+0.222	+0.024	+0.029	-0.030	42.43	-35.41
23	Boss 740.....	20	3 12 36.36	+0.033	+0.229	+0.024	+0.046	-0.026	0.68	-35.72
24	Boss 774.....	20	3 19 43.14	+0.035	+0.216	+0.020	+0.042	+0.026	7.59	-35.64
25	Boss 817.....	20	3 30 58.88	+0.032	+0.225	+0.025	+0.047	-0.063	23.33	-35.57
26	Persei.....	20	3 39 57.27	+0.036	+0.205	+0.023	+0.049	-0.016	21.66	-35.67
27	Persei.....	20	3 49 19.79	+0.040	+0.232	+0.020	+0.047	+0.035	44.18	-35.71
28	Boss 944.....	20	4 2 17.63	+0.046	+0.233	+0.019	+0.052	+0.046	42.07	-35.68
29	Groombridge 750.....	22	4 9 56.74	+0.053	+0.240	+0.209	+0.449	.....	19.75	.....
30	Boss 1030.....	20	4 21 14.03	+0.052	+0.250	+0.020	+0.060	+0.039	38.48	-35.67
31	Boss 1074.....	20	4 31 20.22	+0.055	+0.245	+0.023	+0.073	-0.012	44.59	-35.71
32	Boss 1129.....	20	4 44 18.27	+0.056	+0.255	+0.020	+0.065	+0.040	42.75	-35.64
33	Ursæ Minoris s. p.	22	4 55 11.60	+0.047	+0.233	+0.331	-0.178	.....	37.67	.....
November 7, L.										
34	Pegasi.....	20	22 46 26.97	-0.027	+0.162	+0.019	-0.029	+0.045	51.01	-36.00
35	Andromedæ.....	20	22 58 33.68	-0.017	+0.194	+0.023	-0.023	-0.013	57.59	-36.08
36	Boss 5975.....	20	23 9 12.36	-0.011	+0.220	+0.026	-0.016	-0.058	36.34	-35.97
37	Boss 6008.....	20	23 17 20.12	+0.001	+0.284	+0.021	+0.001	+0.007	44.03	-36.12
38	H. Cephei.....	26	23 28 27.15	+0.010	+0.230	+0.308	+0.121	.....	48.88	.....
39	Andromedæ.....	20	23 42 22.30	+0.014	+0.151	+0.024	+0.020	-0.027	46.25	-36.07
40	Boss 6150.....	20	23 53 58.77	+0.008	+0.157	+0.019	+0.009	+0.042	22.71	-36.13
41	Andromedæ.....	20	0 4 32.66	+0.003	+0.228	+0.019	+0.003	+0.046	56.67	-36.06
42	Boss 43.....	20	0 13 12.06	+0.011	+0.288	+0.022	+0.014	+0.005	36.01	-36.09
43	Andromedæ.....	20	0 35 19.93	+0.006	+0.300	+0.020	+0.007	+0.052	43.96	-36.05
44	Andromedæ.....	20	1 5 31.22	+0.006	+0.277	+0.021	+0.007	+0.022	55.28	-35.99
45	Piscium.....	20	1 15 20.71	+0.015	+0.290	+0.019	+0.016	+0.068	44.72	-36.09
November 10, M.										
46	Andromedæ.....	20	0 35 21.67	+0.031	+0.282	+0.020	+0.036	+0.049	43.95	-37.82
47	H. Camelopardalis s. p.	32	0 49 0.82	+0.034	+0.210	+0.422	-0.173	.....	24.82	.....
48	Andromedæ.....	20	1 5 32.97	+0.035	+0.169	+0.021	+0.043	+0.014	55.27	-37.78
49	Boss 321.....	20	1 23 8.69	+0.036	+0.170	+0.024	+0.051	-0.025	30.82	-37.92
50	Andromedæ.....	20	1 32 22.94	+0.021	+0.113	+0.023	+0.028	-0.005	45.22	-37.77
51	Trianguli.....	20	1 48 48.65	+0.019	+0.089	+0.019	+0.021	+0.017	11.19	[-37.52]
52	Andromedæ.....	20	1 59 15.36	+0.026	+0.111	+0.023	+0.035	-0.008	37.61	-37.81
November 10, L.										
53	Boss 555.....	20	2 23 0.20	+0.025	+0.174	+0.020	+0.029	+0.027	22.56	-37.72
54	Boss 610.....	20	2 37 27.41	+0.023	+0.146	+0.022	+0.030	-0.003	49.69	-37.77
55	Arietis.....	20	2 45 33.54	+0.023	+0.135	+0.019	+0.025	+0.031	55.87	-37.75
56	Boss 672.....	20	2 54 37.90	+0.020	+0.194	+0.025	+0.029	-0.039	0.30	-37.62
57	Boss 713.....	20	3 4 19.98	+0.019	+0.161	+0.024	+0.027	-0.022	42.28	-37.73
58	Boss 740.....	20	3 12 38.43	+0.025	+0.149	+0.024	+0.034	-0.017	0.72	-37.75

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
			h m s	s	s	s	s	s	s	s
1	Boss 774.....	20	3 19 45.32	+0.025	+0.161	+0.020	+0.030	+0.019	7.63	-37.76
2	Boss 817.....	20	3 31 1.06	+0.019	+0.149	+0.025	+0.028	-0.035	23.38	-37.70
3	ν Persei.....	16	3 39 59.46	+0.011	+0.127	+0.023	+0.015	-0.010	21.74	-37.75
4	Boss 944.....	20	4 2 19.82	-0.001	+0.184	+0.019	-0.001	+0.037	42.12	-37.75
5	Groombridge 750.....	22	4 9 59.93	-0.005	+0.195	+0.209	-0.042	.....	20.22	.....
6	Boss 1030.....	20	4 21 16.23	-0.008	+0.184	+0.020	-0.009	+0.029	38.54	-37.73
7	Boss 1074.....	20	4 31 22.43	-0.012	+0.163	+0.023	-0.016	-0.008	44.67	-37.76
November 11, L.										
8	Boss 5975.....	20	23 9 14.52	-0.013	+0.392	+0.026	-0.019	-0.104	36.24	-38.38
9	Boss 6008.....	20	23 17 22.13	+0.009	+0.420	+0.021	+0.011	+0.011	43.96	-38.21
10	Boss 6049.....	20	23 27 41.63	+0.027	+0.431	+0.022	+0.035	+0.001	3.45	-38.24
11	ι Andromedæ.....	20	23 34 33.04	+0.028	+0.334	+0.023	+0.038	-0.030	54.90	-38.17
12	ψ Andromedæ.....	20	23 42 24.24	+0.029	+0.311	+0.024	+0.041	-0.055	46.19	-38.06
13	Boss 6150.....	20	23 54 0.69	+0.043	+0.352	+0.019	+0.046	+0.095	22.66	-38.19
14	α Andromedæ.....	20	0 4 34.64	+0.040	+0.376	+0.019	+0.045	+0.076	56.63	-38.15
15	Boss 43.....	20	0 13 13.99	+0.034	+0.405	+0.022	+0.043	+0.006	35.96	-38.10
16	Boss 82.....	20	0 24 14.50	+0.030	+0.387	+0.024	+0.041	-0.047	36.42	-38.10
17	δ Andromedæ.....	20	0 35 22.02	+0.030	+0.351	+0.020	+0.034	+0.060	43.94	-38.19
18	Boss 175.....	20	0 45 42.52	+0.030	+0.348	+0.022	+0.039	-0.014	4.36	-38.21
19	43 H. Cephei.....	24	0 57 33.15	+0.031	+0.316	+0.232	+0.290	.....	52.12	.....
November 12, M.										
20	ο Andromedæ.....	20	22 58 36.14	+0.051	+0.277	+0.023	+0.068	-0.019	57.51	-38.70
21	Boss 5975.....	20	23 9 14.91	+0.046	+0.213	+0.026	+0.069	-0.056	36.22	-38.73
22	Boss 6008.....	20	23 17 22.51	+0.042	+0.234	+0.021	+0.053	+0.006	43.94	-38.65
23	Boss 6049.....	20	23 27 42.17	+0.048	+0.251	+0.022	+0.062	+0.001	3.43	-38.82
24	ι Andromedæ.....	20	23 34 33.68	+0.047	+0.230	+0.023	+0.064	-0.021	54.89	-38.86
25	ψ Andromedæ.....	20	23 42 24.88	+0.042	+0.185	+0.024	+0.060	-0.033	46.17	-38.76
26	Boss 43.....	20	0 13 14.53	+0.072	+0.248	+0.022	+0.092	+0.004	35.94	-38.71
27	δ Andromedæ.....	20	0 35 22.50	+0.072	+0.198	+0.020	+0.083	+0.034	43.94	-38.70
28	32 H. Camelopardalis s.p.	22	0 49 2.18	+0.059	+0.163	+0.422	-0.300	.....	25.05	.....
29	β Trianguli.....	20	2 5 4.61	+0.070	+0.198	+0.021	+0.085	+0.018	26.01	-38.72
November 12, L.										
30	41 Arietis.....	20	2 45 34.53	+0.066	+0.224	+0.019	+0.072	+0.052	55.89	-38.78
31	Boss 713.....	20	3 4 21.04	+0.067	+0.215	+0.024	+0.094	-0.029	42.30	-38.83
32	Boss 740.....	20	3 12 39.50	+0.072	+0.207	+0.024	+0.099	-0.024	0.75	-38.85
33	Boss 774.....	24	3 19 46.32	+0.072	+0.220	+0.020	+0.086	+0.026	7.65	-38.80
34	Boss 817.....	18	3 31 2.09	+0.067	+0.208	+0.025	+0.099	-0.049	23.41	-38.76
35	ν Persei.....	20	3 40 0.42	+0.066	+0.208	+0.023	+0.089	-0.017	21.78	-38.74
36	Boss 944.....	20	4 2 20.88	+0.069	+0.226	+0.019	+0.077	+0.045	42.15	-38.87
37	Boss 1030.....	20	4 21 17.28	+0.071	+0.239	+0.020	+0.082	+0.037	38.58	-38.84
38	Boss 1074.....	20	4 31 23.45	+0.066	+0.218	+0.023	+0.088	-0.011	44.71	-38.84
39	Boss 1129.....	20	4 44 21.50	+0.069	+0.222	+0.020	+0.080	+0.035	42.87	-38.76
40	ε Ursæ Minoris s. P.	24	4 55 14.81	+0.078	+0.263	+0.331	-0.296	.....	37.14	.....
November 13, L.										
41	Boss 5975.....	20	23 9 15.50	-0.019	+0.425	+0.026	-0.028	-0.113	36.21	-39.17
42	Boss 6008.....	20	23 17 23.18	-0.026	+0.443	+0.021	-0.033	+0.012	43.93	-39.25
43	39 H. Cephei.....	22	23 28 31.85	-0.021	+0.443	+0.308	-0.255	.....	47.18	.....
44	ψ Andromedæ.....	20	23 42 25.40	-0.017	+0.403	+0.024	-0.024	-0.071	46.16	-39.17
45	Boss 6150.....	20	23 54 1.83	-0.014	+0.364	+0.019	-0.015	+0.098	22.63	-39.30
46	α Andromedæ.....	20	0 4 35.73	-0.006	+0.347	+0.019	-0.007	+0.070	56.62	-39.19
47	32 H. Camelopardalis s.p.	4	0 49 1.42	+0.013	+0.310	+0.422	-0.066	.....	25.15	.....
48	β Andromedæ.....	20	1 5 34.49	+0.026	+0.326	+0.021	+0.032	+0.026	55.27	-39.30
49	υ Piscium.....	20	1 15 23.87	+0.023	+0.336	+0.019	+0.025	+0.079	44.71	-39.28
50	Boss 321.....	20	1 23 10.04	+0.026	+0.343	+0.024	+0.037	-0.051	30.82	-39.23
November 17, M.										
51	Boss 6008.....	20	23 17 25.21	+0.038	+0.365	+0.021	+0.048	+0.009	43.90	-41.39
52	Boss 6049.....	20	23 27 44.64	+0.041	+0.349	+0.022	+0.053	+0.001	3.38	-41.34
53	ι Andromedæ.....	20	23 34 36.23	+0.038	+0.259	+0.023	+0.052	-0.024	54.81	-41.47
54	ψ Andromedæ.....	20	23 42 27.35	+0.045	+0.246	+0.024	+0.064	-0.043	46.09	-41.31
55	Boss 6150.....	20	23 54 3.88	+0.050	+0.298	+0.019	+0.053	+0.080	22.62	-41.41

TABLE IX.—*Observations for Clock Corrections—Continued.*

WASHINGTON I, 1913—Continued.

No	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—				App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.			
			h m s	s	s	s	s	s	s	s	s
1	α Andromedæ.....	20	0 4 37.82	+0.046	+0.286	+0.019	+0.052	+0.058	56.58	-41.37	
2	Boss 43.....	20	0 13 17.18	+0.047	+0.246	+0.022	+0.060	+0.004	35.92	-41.35	
3	Boss 82.....	20	0 24 17.69	+0.049	+0.231	+0.024	+0.068	-0.028	36.39	-41.36	
4	δ Andromedæ.....	20	0 35 25.10	+0.040	+0.231	+0.020	+0.046	+0.040	43.91	-41.30	
5	32 H. Camelopardalis s. p.	22	0 49 3.98	+0.040	+0.231	+0.422	-0.203	.....	25.65	.....
6	β Andromedæ.....	20	1 5 36.51	+0.026	+0.252	+0.021	+0.032	+0.020	55.25	-41.33	
7	Boss 321.....	20	1 23 12.24	+0.043	+0.230	+0.024	+0.060	-0.034	30.83	-41.46	
8	ν Andromedæ.....	20	1 32 26.61	+0.056	+0.231	+0.023	+0.074	-0.011	45.22	-41.48	
9	α Trianguli.....	20	1 48 52.46	+0.057	+0.246	+0.019	+0.064	+0.047	11.20	-41.39	
10	β Andromedæ.....	20	1 59 18.95	+0.046	+0.223	+0.023	+0.062	-0.016	37.63	-41.39	
11	γ Trianguli.....	20	2 5 7.30	+0.029	+0.227	+0.021	+0.035	+0.021	26.03	-41.35	
12	γ Trianguli.....	20	2 12 53.90	+0.042	+0.246	+0.020	+0.050	+0.028	12.58	-41.42	
13	Boss 555.....	20	2 23 3.91	+0.059	+0.224	+0.020	+0.068	+0.034	22.62	-41.41	
November 17, L.											
14	Boss 610.....	20	2 37 31.11	+0.061	+0.261	+0.022	+0.079	-0.005	49.78	-41.43	
15	41 Arietis.....	20	2 45 37.16	+0.056	+0.265	+0.019	+0.061	+0.062	55.93	-41.37	
16	Boss 672.....	20	2 54 41.71	+0.056	+0.301	+0.025	+0.081	-0.061	0.40	-41.36	
17	Boss 713.....	20	3 4 23.72	+0.062	+0.290	+0.024	+0.087	+0.040	42.39	-41.48	
18	Boss 740.....	20	3 12 42.20	+0.066	+0.251	+0.024	+0.091	-0.029	0.84	-41.45	
19	Boss 774.....	20	3 19 49.02	+0.063	+0.264	+0.020	+0.075	+0.031	7.74	-41.41	
20	Boss 817.....	20	3 31 4.88	+0.060	+0.312	+0.025	+0.088	-0.073	23.52	-41.40	
21	ν Persei.....	20	3 40 3.19	+0.068	+0.304	+0.023	+0.092	-0.024	21.86	-41.42	
22	Boss 944.....	20	4 2 23.55	+0.062	+0.322	+0.019	+0.070	+0.064	42.27	-41.43	
23	Groombridge 750.....	20	4 10 4.86	+0.066	+0.344	+0.209	+0.559	.....	21.24	.....
24	Boss 1030.....	20	4 21 19.99	+0.070	+0.314	+0.020	+0.081	+0.049	38.70	-41.44	
25	Boss 1074.....	20	4 31 26.19	+0.079	+0.274	+0.023	+0.105	-0.014	44.86	-41.44	
26	Boss 1129.....	20	4 44 24.26	+0.063	+0.259	+0.020	+0.073	+0.040	43.00	-41.39	
27	ϵ Ursæ Minoris s. p.	24	4 55 16.42	+0.040	+0.253	+0.331	-0.152	.....	36.62	.....
28	Boss 1222.....	20	5 5 1.12	+0.059	+0.257	+0.025	+0.085	-0.052	19.77	-41.41	
29	λ Aurigæ.....	20	5 13 47.86	+0.073	+0.242	+0.022	+0.095	-0.006	6.51	-41.46	
30	Boss 1369.....	20	5 32 28.78	+0.073	+0.255	+0.019	+0.080	+0.060	47.52	-41.42	
November 18, L.											
31	α Andromedæ.....	20	0 4 38.43	-0.064	+0.054*	+0.019	-0.072	+0.011	56.57	-41.82	
32	Boss 175.....	20	0 45 46.32	-0.054	+0.074	+0.022	-0.071	-0.003	4.34	-41.93	
33	β Andromedæ.....	20	1 5 37.12	-0.045	+0.052	+0.021	-0.055	+0.004	55.25	-41.84	
34	ν Piscium.....	20	1 15 26.68	-0.040	+0.054	+0.019	-0.044	+0.013	44.70	-41.97	
35	α Ursæ Minoris.....	14	1 29 55.66	-0.034	+0.060	+0.847	-1.091	.....	11.47	.....
36	α Trianguli.....	20	1 48 53.08	-0.030	+0.037	+0.019	-0.034	+0.007	11.20	-41.87	
37	γ Andromedæ.....	20	1 59 19.60	-0.028	+0.014	+0.023	-0.038	-0.001	37.63	-41.95	
38	β Trianguli.....	20	2 5 8.00	-0.027	+0.042	+0.021	-0.033	+0.004	26.03	-41.96	
39	γ Trianguli.....	20	2 12 54.56	-0.031	+0.051	+0.020	-0.037	+0.006	12.58	-41.97	
November 18, M.											
40	41 Arietis.....	20	2 45 37.97	0.000	-0.035	+0.019	0.000	-0.008	55.94	-42.04	
41	Boss 774.....	20	3 19 49.72	-0.005	-0.133	+0.020	-0.006	-0.016	7.76	-41.96	
42	Boss 817.....	20	3 31 5.45	-0.008	-0.121	+0.025	-0.012	+0.028	23.54	-41.95	
43	ν Persei.....	20	3 40 3.84	-0.009	-0.157	+0.023	-0.012	+0.013	21.88	-41.98	
44	ζ Persei.....	20	3 49 26.32	-0.007	-0.150	+0.020	-0.008	-0.022	44.39	-41.92	
45	Boss 944.....	20	4 2 24.26	-0.007	-0.112	+0.019	-0.008	-0.022	42.28	-41.97	
46	Boss 970.....	20	4 9 45.07	-0.004	-0.111	+0.022	-0.005	+0.003	3.04	-42.05	
47	Boss 1030.....	20	4 21 20.73	+0.001	-0.118	+0.020	+0.001	-0.018	38.72	-42.01	
48	Boss 1074.....	20	4 31 26.82	0.000	-0.185	+0.023	0.000	+0.009	44.88	-41.97	
November 19, M.											
49	δ Andromedæ.....	20	0 35 26.23	-0.021	-0.111	+0.020	-0.024	-0.019	43.89	-42.32	
50	Boss 321.....	20	1 23 13.25	-0.010	-0.218	+0.024	-0.014	+0.032	30.83	-42.46	
51	α Trianguli.....	20	1 48 53.72	-0.004	-0.217	+0.019	-0.005	-0.042	11.20	-42.49	
52	γ Andromedæ.....	20	1 59 20.21	-0.004	-0.194	+0.023	-0.005	+0.014	37.64	-42.60	
November 19, L.											
53	41 Arietis.....	20	2 45 38.42	+0.007	-0.260	+0.019	+0.008	-0.061	55.95	-42.44	
54	Boss 672.....	20	2 54 42.76	+0.008	-0.180	+0.025	+0.012	+0.036	0.42	-42.41	
55	Boss 713.....	20	3 4 24.82	+0.011	-0.180	+0.024	+0.015	+0.025	42.42	-42.46	

* Azimuth adjusted.

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
			h m s	s	s	s	s	s	s	s
1	Boss 740.....	20	3 12 43.34	+0.011	-0.177	+0.024	+0.015	+0.020	0.87	-42.53
2	Boss 774.....	20	3 19 50.22	+0.009	-0.175	+0.020	+0.011	-0.021	7.77	-42.46
3	Boss 817.....	20	3 31 5.85	+0.013	-0.180	+0.025	+0.019	+0.042	23.56	-42.38
4	ν Persei.....	20	3 40 4.29	+0.014	-0.157	+0.023	+0.019	+0.013	21.89	-42.46
5	ζ Persei.....	20	3 49 26.80	+0.015	-0.146	+0.020	+0.017	-0.022	44.40	-42.42
6	Boss 1030.....	20	4 21 21.18	+0.017	-0.093	+0.020	+0.020	-0.015	38.75	-42.45
7	Boss 1074.....	12	4 31 27.30	+0.023	-0.106	+0.023	+0.030	+0.005	44.91	-42.45
8	ϵ Aurigæ.....	20	4 52 6.99	+0.031	-0.106	+0.020	+0.037	-0.013	24.56	-42.47
9	Boss 1311.....	20	5 22 40.33	+0.034	-0.153	+0.021	+0.041	-0.015	57.86	-42.52
10	Boss 1369.....	20	5 32 30.08	+0.046	-0.150	+0.019	+0.050	-0.035	47.58	-42.53
11	\circ Aurigæ.....	20	5 39 57.97	+0.050	-0.146	+0.026	+0.076	+0.043	15.62	-42.50
12	Boss 1457.....	20	5 48 38.80	+0.050	-0.157	+0.019	+0.055	-0.035	56.33	-42.51
November 20, L.										
13	Boss 43.....	20	0 13 18.72	-0.022*	-0.011	+0.038	-0.028	0.000	35.89	-42.84
14	Boss 82.....	20	0 24 19.15	-0.026	-0.015	+0.042	-0.036	+0.002	36.36	-42.80
15	δ Andromedæ.....	20	0 35 26.78	-0.021	-0.034	+0.035	-0.024	-0.006	43.89	-42.90
16	32 H. Camelopardalis s. p.	20	0 49 8.86	-0.012	-0.102	+0.544	+0.061	.....	26.04	.....
17	β Andromedæ.....	20	1 5 38.12	-0.007	-0.139	+0.037	-0.009	-0.011	55.23	-42.91
18	ν Piscium.....	20	1 15 27.67	-0.003	-0.147	+0.034	-0.003	-0.035	44.70	-42.97
19	Boss 321.....	20	1 23 13.72	-0.007	-0.176	+0.042	-0.010	+0.026	30.82	-42.96
20	ν Andromedæ.....	20	1 32 28.12	-0.005	-0.183	+0.040	-0.007	+0.009	45.21	-42.95
21	α Trianguli.....	20	1 48 54.10	+0.007	-0.179	+0.034	+0.008	-0.035	11.20	-42.91
22	γ Andromedæ.....	20	1 59 20.58	+0.011	-0.170	+0.040	+0.015	+0.012	37.63	-43.02
23	β Trianguli.....	20	2 5 8.98	+0.008	-0.174	+0.036	+0.010	-0.016	26.03	-42.98
24	γ Trianguli.....	20	2 12 55.55	+0.005	-0.154	+0.036	+0.006	-0.018	12.59	-42.98
25	Boss 555.....	20	2 23 5.66	+0.001	-0.147	+0.035	+0.001	-0.022	22.63	-43.04
26	Boss 610.....	20	2 37 32.75	+0.009	-0.150	+0.039	+0.012	+0.003	49.80	-43.00
27	41 Arietis.....	20	2 45 38.95	+0.019	-0.142	+0.034	+0.021	-0.033	55.95	-43.02
November 20, M.										
28	Boss 672.....	20	2 54 43.30	+0.013	-0.220	+0.044	+0.019	+0.044	0.43	-42.98
29	Boss 740.....	20	3 12 43.88	+0.016	-0.287	+0.041	+0.022	+0.033	0.88	-43.10
30	Boss 774.....	20	3 19 50.72	+0.025	-0.205	+0.036	+0.030	-0.024	7.78	-42.98
31	Boss 817.....	20	3 31 6.48	+0.012	-0.176	+0.045	+0.018	+0.041	23.57	-43.01
32	ν Persei.....	20	3 40 4.87	+0.002	-0.213	+0.041	+0.003	+0.017	21.91	-43.02
33	ζ Persei.....	20	3 49 27.39	+0.006	-0.144	+0.035	+0.007	-0.021	44.41	-43.00
34	Boss 944.....	20	4 2 25.28	+0.007	-0.102	+0.034	+0.008	-0.020	42.32	-42.98
35	Boss 970.....	20	4 9 46.08	+0.002	-0.180	+0.039	+0.003	+0.006	3.07	-43.06
36	Boss 1030.....	20	4 21 21.76	+0.004	-0.241	+0.035	+0.005	-0.038	38.76	-43.00
37	Boss 1074.....	20	4 31 27.92	+0.004	-0.217	+0.040	+0.005	+0.011	44.93	-43.05
38	Boss 1129.....	20	4 44 26.07	+0.021	-0.127	+0.035	+0.024	-0.020	43.07	-43.04
39	ϵ Ursæ Minoris s. p.	20	4 55 19.16	+0.017	-0.092	+0.426	-0.065	.....	36.38	.....
40	Boss 1222.....	20	5 5 2.84	+0.013	-0.144	+0.044	+0.019	+0.029	19.86	-43.07
41	λ Aurigæ.....	20	5 13 49.61	+0.013	-0.138	+0.039	+0.017	+0.003	6.58	-43.09
42	Boss 1311.....	20	5 22 40.84	+0.007	-0.103	+0.036	+0.008	-0.010	57.89	-42.98
43	Groombridge 944.....	20	5 35 10.60	0.000	-0.108	+0.036	0.000	.....	28.99	.....
44	Boss 1457.....	20	5 48 39.35	-0.003	-0.104	+0.034	-0.003	-0.023	56.36	-43.00
November 21, M.										
45	ψ Andromedæ.....	20	23 42 29.40	-0.017	-0.221	+0.043	-0.024	+0.039	46.03	-43.43
46	α Andromedæ.....	20	0 4 39.94	+0.002	-0.200	+0.034	+0.002	-0.041	56.54	-43.40
47	Boss 43.....	20	0 13 19.20	-0.003	-0.188	+0.038	-0.004	-0.003	35.87	-43.36
48	Boss 82.....	20	0 24 19.75	-0.009	-0.247	+0.042	-0.012	+0.030	36.34	-43.47
49	δ Andromedæ.....	20	0 35 27.28	-0.006	-0.270	+0.035	-0.007	-0.046	43.88	-43.38
50	32 H. Camelopardalis s. p.	20	0 49 10.82	0.000	-0.241	+0.544	0.000	.....	26.19	.....
51	ν Piscium.....	20	1 15 28.22	+0.007	-0.211	+0.034	+0.008	-0.050	44.70	-43.51
52	Boss 321.....	20	1 23 14.22	+0.020	-0.237	+0.042	+0.028	+0.035	30.81	-43.51
53	ν Andromedæ.....	20	1 32 28.67	+0.019	-0.302	+0.040	+0.025	+0.014	45.21	-43.54
54	α Trianguli.....	20	1 48 54.65	+0.007	-0.306	+0.034	+0.008	-0.060	11.20	-43.43
55	γ Andromedæ.....	20	1 59 21.08	+0.007	-0.309	+0.040	+0.009	+0.022	37.63	-43.52
56	β Trianguli.....	20	2 5 9.48	+0.005	-0.306	+0.036	+0.006	-0.028	26.04	-43.45
57	γ Trianguli.....	20	2 12 56.03	+0.003	-0.268	+0.036	+0.004	-0.031	12.59	-43.45
58	Boss 555.....	20	2 23 6.18	+0.008	-0.263	+0.035	+0.009	-0.040	22.63	-43.55
59	Boss 610.....	20	2 37 33.29	+0.017	-0.301	+0.039	+0.022	+0.006	49.79	-43.57
60	41 Arietis.....	20	2 45 39.50	+0.015	-0.265	+0.034	+0.016	-0.062	55.96	-43.53

* Level adjusted.

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
November 21, L.										
1	Boss 672.....	20	h m s 2 54 43.69	+ ^s 0.011	- ^s 0.142	+ ^s 0.044	+ ^s 0.016	+ ^s 0.029	^s 0.42	- ^s 43.36
2	Boss 713.....	20	3 4 25.88	+0.017	-0.161	+0.042	+0.024	+0.022	42.42	-43.55
3	Boss 740.....	20	3 12 44.26	+0.025	-0.156	+0.041	+0.034	+0.018	0.88	-43.47
4	Boss 774.....	20	3 19 51.26	+0.020	-0.147	+0.036	+0.024	-0.017	7.78	-43.52
5	Boss 817.....	20	3 31 6.84	+0.021	-0.161	+0.045	+0.031	+0.038	23.58	-43.37
6	ν Persei.....	20	3 40 5.37	+0.031	-0.169	+0.041	+0.042	+0.014	21.92	-43.55
7	ζ Persei.....	20	3 49 27.86	+0.027	-0.157	+0.035	+0.031	-0.023	44.43	-43.47
8	Boss 944.....	20	4 2 25.87	+0.022	-0.155	+0.034	+0.025	-0.031	42.33	-43.57
9	Groombridge 750.....	14	4 10 2.74	+0.023	-0.150	+0.368	+0.195	.....	21.60	.....
10	Boss 1030.....	20	4 21 22.25	+0.025	-0.158	+0.035	+0.029	-0.025	38.78	-43.51
11	Boss 1074.....	20	4 31 28.35	+0.035	-0.164	+0.040	+0.046	+0.008	44.94	-43.50
12	Boss 1129.....	20	4 44 26.62	+0.040	-0.154	+0.035	+0.046	-0.024	43.09	-43.59
13	ε Ursæ Minoris s. p.....	22	4 55 20.97	+0.042	-0.154	+0.426	-0.159	.....	36.32	.....
14	Boss 1222.....	20	5 5 3.32	+0.041	-0.186	+0.044	+0.059	+0.038	19.88	-43.58
15	λ Aurigæ.....	20	5 13 50.09	+0.032	-0.217	+0.039	+0.042	+0.005	6.61	-43.57
16	Boss 1311.....	20	5 22 41.43	+0.034	-0.215	+0.036	+0.041	-0.021	57.90	-43.59
17	Boss 1369.....	20	5 32 31.13	+0.040	-0.225	+0.034	+0.044	-0.053	47.62	-43.53
18	ο Aurigæ.....	20	5 39 59.08	+0.042	-0.243	+0.046	+0.064	+0.071	15.68	-43.58
19	Boss 1457.....	20	5 48 39.89	+0.035	-0.199	+0.034	+0.039	-0.044	56.37	-43.55
November 22, L.										
20	39 H. Cephei.....	20	23 28 27.62	+0.009	-0.002	+0.544	+0.109	.....	43.96	.....
21	Boss 6150.....	20	23 54 6.57	+0.015	+0.033	+0.033	+0.016	+0.009	22.56	-44.07
22	α Andromedæ.....	20	0 4 40.44	+0.015	+0.025	+0.034	+0.017	+0.005	56.53	-43.97
23	Boss 43.....	20	0 13 19.76	+0.019	-0.007	+0.038	+0.024	0.000	35.85	-43.97
24	Boss 82.....	20	0 24 20.17	+0.021	-0.058	+0.042	+0.029	+0.007	36.32	-43.93
25	δ Andromedæ.....	20	0 35 27.80	+0.017	-0.049	+0.035	+0.020	-0.008	43.87	-43.98
26	32 H. Camelopardalis s. p.....	18	0 49 10.47	+0.023	-0.031	+0.544	-0.117	.....	26.33	.....
27	β Andromedæ.....	20	1 5 39.14	+0.039	-0.049	+0.037	+0.048	-0.004	55.22	-44.00
28	ν Piscium.....	20	1 15 28.66	+0.043	-0.054	+0.034	+0.047	-0.013	44.69	-44.04
29	Boss 321.....	20	1 23 14.70	+0.042	-0.098	+0.042	+0.059	+0.015	30.79	-44.03
30	υ Andromedæ.....	20	1 32 29.14	+0.044	-0.126	+0.040	+0.058	+0.006	45.20	-44.04
31	α Trianguli.....	20	1 48 55.16	+0.047	-0.096	+0.034	+0.053	-0.019	11.20	-44.03
32	γ Andromedæ.....	20	1 59 21.58	+0.052	-0.123	+0.040	+0.070	+0.009	37.63	-44.07
33	β Trianguli.....	20	2 5 10.02	+0.052	-0.112	+0.036	+0.063	-0.010	26.04	-44.07
34	γ Trianguli.....	20	2 12 56.58	+0.053	-0.127	+0.036	+0.063	-0.014	12.60	-44.06
35	Boss 555.....	20	2 23 6.63	+0.052	-0.147	+0.035	+0.060	-0.022	22.63	-44.07
36	Boss 610.....	20	2 37 33.80	+0.058	-0.138	+0.039	+0.076	+0.003	49.79	-44.13
37	41 Arietis.....	20	2 45 39.99	+0.064	-0.115	+0.034	+0.070	-0.027	55.97	-44.10
38	Boss 672.....	20	2 54 44.32	+0.048	-0.188	+0.044	+0.070	+0.038	0.42	-44.05
November 22, M.										
39	Boss 713.....	20	3 4 26.34	+0.042	-0.323	+0.042	+0.059	+0.044	42.42	-44.06
40	Boss 774.....	20	3 19 51.79	+0.066	-0.197	+0.036	+0.078	-0.023	7.78	-44.10
41	Boss 817.....	20	3 31 7.47	+0.081	-0.089	+0.045	+0.119	+0.021	23.58	-44.07
42	ζ Persei.....	20	3 49 28.34	+0.078	-0.089	+0.035	+0.091	-0.013	44.44	-44.01
43	Boss 944.....	20	4 2 26.32	+0.035	-0.072	+0.034	+0.039	-0.014	42.33	-44.05
44	Boss 1030.....	20	4 21 22.74	+0.105	-0.090	+0.035	+0.122	-0.014	38.78	-44.10
45	Boss 1074.....	20	4 31 28.95	+0.098	-0.139	+0.040	+0.130	+0.007	44.95	-44.18
46	Boss 1129.....	20	4 44 27.01	+0.097	-0.149	+0.035	+0.112	-0.023	43.10	-44.03
47	ε Ursæ Minoris s. p.....	18	4 55 20.22	+0.102	-0.090	+0.426	-0.387	.....	36.28	.....
48	Boss 1222.....	20	5 5 3.90	+0.098	-0.090	+0.044	+0.142	+0.018	19.90	-44.20
49	λ Aurigæ.....	20	5 13 50.70	+0.100	-0.102	+0.039	+0.131	+0.003	6.64	-44.23
50	Boss 1311.....	20	5 22 41.91	+0.100	-0.072	+0.036	+0.121	-0.007	57.92	-44.14
51	Groombridge 944.....	20	5 35 11.73	+0.098	-0.066	+0.355	+0.803	.....	29.29	.....
52	Boss 1457.....	20	5 48 40.32	+0.105	-0.043	+0.034	+0.116	-0.010	56.39	-44.07
53	Boss 1498.....	20	5 57 51.26	+0.099	-0.038	+0.041	+0.135	+0.004	7.27	-44.17
November 24, M.										
54	Boss 6150.....	20	23 54 7.74	-0.022	-0.165	+0.032	-0.023	-0.044	22.53	-45.17
55	α Andromedæ.....	20	0 4 41.60	-0.033	-0.148	+0.033	-0.037	-0.030	56.51	-45.06
56	Boss 43.....	20	0 13 20.88	-0.034	-0.109	+0.037	-0.043	-0.002	35.82	-45.05
57	Boss 82.....	20	0 24 21.31	-0.037	-0.129	+0.040	-0.051	+0.016	36.28	-45.03
58	δ Andromedæ.....	20	0 35 28.93	-0.042	-0.160	+0.034	-0.048	-0.028	43.86	-45.03
59	32 H. Camelopardalis s. p.....	20	0 49 12.69	-0.040	-0.185	+0.534	+0.203	.....	26.62	.....
60	β Andromedæ.....	20	1 5 40.30	-0.036	-0.174	+0.035	-0.044	-0.014	55.21	-45.07

TABLE IX.—*Observations for Clock Corrections—Continued.*

WASHINGTON I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
			h m s	s	s	s	s	s	s	s
1	ν Piscium.....	20	1 15 29.83	-0.042	-0.206	+0.032	-0.046	-0.048	44.68	-45.09
2	Boss 321.....	20	1 23 15.92	-0.047	-0.254	+0.041	-0.066	+0.038	30.77	-45.16
3	ν Andromedæ.....	20	1 32 30.38	-0.046	-0.245	+0.038	-0.061	+0.012	45.19	-45.18
4	α Trianguli.....	20	1 48 56.35	-0.050	-0.308	+0.033	-0.056	-0.059	11.20	-45.07
5	γ Andromedæ.....	20	1 59 22.77	-0.053	-0.258	+0.039	-0.071	+0.018	37.63	-45.13
6	β Trianguli.....	20	2 5 11.18	-0.057	-0.235	+0.035	-0.069	-0.022	26.04	-45.08
7	γ Trianguli.....	20	2 12 57.74	-0.056	-0.161	+0.035	-0.067	-0.018	12.60	-45.09
8	Boss 555.....	20	2 23 7.90	-0.053	-0.194	+0.034	-0.061	-0.030	22.62	-45.22
9	Boss 610.....	20	2 37 35.02	-0.052	-0.248	+0.038	-0.068	+0.005	49.78	-45.22
10	41 Arietis.....	20	2 45 41.21	-0.058	-0.224	+0.033	-0.064	-0.052	55.98	-45.15
11	47 H. Cephei.....	20	2 55 24.42	-0.056	-0.182	+0.153	-0.226	.....	39.87	.....
November 24, L.										
12	Boss 713.....	20	3 4 27.58	-0.058	-0.200	+0.041	-0.081	+0.027	42.42	-45.15
13	Boss 740.....	20	3 12 46.06	-0.065	-0.194	+0.040	-0.090	+0.022	0.88	-45.15
14	Boss 774.....	20	3 19 53.05	-0.072	-0.186	+0.035	-0.086	-0.022	7.79	-45.19
15	Boss 817.....	20	3 31 8.67	-0.065	-0.193	+0.043	-0.096	+0.045	23.59	-45.07
16	ν Persei.....	20	3 40 7.12	-0.061	-0.200	+0.039	-0.082	+0.016	21.96	-45.13
17	ζ Persei.....	20	3 49 29.65	-0.071	-0.162	+0.034	-0.083	-0.024	44.47	-45.11
18	Boss 944.....	20	4 2 27.68	-0.078	-0.156	+0.033	-0.088	-0.031	42.35	-45.24
19	Boss 970.....	20	4 9 48.34	-0.088	-0.187	+0.038	-0.115	+0.006	3.11	-45.16
20	Boss 1030.....	20	4 21 24.07	-0.090	-0.193	+0.034	-0.104	-0.030	38.80	-45.17
21	Boss 1074.....	20	4 31 30.22	-0.090	-0.201	+0.038	-0.119	+0.010	44.98	-45.17
22	Boss 1129.....	20	4 44 28.40	-0.095	-0.200	+0.034	-0.110	-0.031	43.12	-45.17
23	ϵ Ursæ Minoris s. P.	24	4 55 22.00	-0.099	-0.197	+0.419	+0.376	.....	36.17	.....
24	Boss 1222.....	20	5 5 5.14	-0.096	-0.220	+0.042	-0.139	+0.044	19.93	-45.16
25	λ Aurigæ.....	20	5 13 51.93	-0.096	-0.193	+0.038	-0.125	+0.005	6.69	-45.16
26	Boss 1369.....	20	5 32 32.98	-0.095	-0.180	+0.033	-0.104	-0.042	47.67	-45.20
27	σ Aurigæ.....	20	5 40 0.99	-0.095	-0.178	+0.045	-0.144	+0.052	15.78	-45.16
28	Boss 1457.....	20	5 48 41.71	-0.093	-0.174	+0.033	-0.103	-0.038	56.43	-45.17
29	δ Ursæ Minoris s. P.	20	6 0 26.80	-0.094	-0.201	+0.965	+0.925	.....	40.83	.....
November 25, L.										
30	α Andromedæ.....	20	0 4 41.96	+0.009*	+0.048	+0.033	+0.010	+0.010	56.50	-45.51
31	Boss 43.....	20	0 13 21.38	+0.015	+0.086	+0.037	+0.019	+0.001	35.80	-45.64
32	Boss 82.....	20	0 24 21.84	+0.029	+0.077	+0.040	+0.040	-0.009	36.27	-45.64
33	δ Andromedæ.....	20	0 35 29.42	+0.036	+0.086	+0.034	+0.041	+0.015	43.85	-45.66
34	32 H. Camelopardalis s. P.	10	0 49 11.63	+0.044	+0.104	+0.534	-0.223	.....	26.76	.....
35	γ Andromedæ.....	20	1 59 23.22	+0.042	+0.116	+0.039	+0.056	-0.008	37.63	-45.68
36	β Trianguli.....	20	2 5 11.67	+0.035	+0.127	+0.035	+0.042	+0.012	26.04	-45.72
37	γ Trianguli.....	20	2 12 58.29	+0.032	+0.115	+0.035	+0.038	+0.013	12.60	-45.78
38	Boss 610.....	20	2 37 35.50	+0.025	+0.060	+0.038	+0.033	-0.001	49.79	-45.78
39	41 Arietis.....	20	2 45 41.64	+0.027	+0.032	+0.033	+0.030	+0.007	55.98	-45.73
40	Boss 672.....	20	2 54 46.08	+0.036	+0.050	+0.042	+0.052	-0.010	0.43	-45.73
41	Boss 713.....	20	3 4 28.18	+0.034	+0.045	+0.041	+0.047	-0.006	42.43	-45.83
November 25, M.										
42	ν Persei.....	20	3 40 7.60	+0.020	-0.066	+0.039	+0.027	+0.005	21.97	-45.70
December 3, L.										
43	Boss 43.....	20	0 13 25.47	+0.045	+0.063	+0.033	+0.057	+0.001	35.73	-49.83
44	δ Andromedæ.....	20	0 35 33.51	+0.063	+0.098	+0.030	+0.072	+0.017	43.77	-49.86
45	32 H. Camelopardalis s. P.	20	0 49 18.06	+0.054	+0.046	+0.506	-0.274	.....	28.05	.....
46	43 H. Cephei.....	12	0 57 37.60	+0.052	+0.013	+0.355	+0.486	.....	48.43	.....
47	β Andromedæ.....	20	1 5 44.84	+0.061	+0.046	+0.032	+0.074	+0.004	55.11	-49.81
48	ν Piscium.....	20	1 15 34.48	+0.071	+0.094	+0.029	+0.078	+0.022	44.63	-49.98
49	Boss 321.....	20	1 23 20.50	+0.068	+0.102	+0.037	+0.096	-0.015	30.73	-49.89
50	ν Andromedæ.....	20	1 32 34.99	+0.070	+0.082	+0.034	+0.093	-0.004	45.15	-49.96
51	γ Andromedæ.....	20	1 59 27.38	+0.090	+0.054	+0.035	+0.121	-0.004	37.60	-49.93
52	β Trianguli.....	20	2 5 15.82	+0.089	+0.052	+0.032	+0.108	+0.005	26.03	-49.93
53	γ Trianguli.....	20	2 13 2.38	+0.103	+0.048	+0.031	+0.123	+0.005	12.60	-49.94
54	Boss 555.....	20	2 23 12.47	+0.123	+0.024	+0.030	+0.143	+0.004	22.66	-49.99
55	Boss 610.....	20	2 37 39.58	+0.118	-0.021	+0.034	+0.154	0.000	49.84	-49.93

* Level adjusted.

TABLE IX.—*Observations for Clock Corrections—Continued.*

WASHINGTON I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
1	41 Arietis.....	20	^h 2 45 ^m 45.82 ^s	+0.120	-0.029	+0.029	+0.132	-0.007	56.01	-49.96
2	Boss 672.....	20	2 54 50.18	+0.126	-0.017	+0.038	+0.183	+0.003	0.49	-49.91
3	Boss 713.....	20	3 4 32.21	+0.121	-0.050	+0.036	+0.169	+0.007	42.51	-49.91
4	Boss 740.....	20	3 12 50.68	+0.123	-0.057	+0.036	+0.170	+0.007	0.98	-49.91
5	Boss 774.....	20	3 19 57.72	+0.124	-0.066	+0.031	+0.147	-0.008	7.89	-50.00
6	Boss 817.....	20	3 31 13.32	+0.128	-0.127	+0.039	+0.189	+0.030	23.71	-49.87
December 3, M.										
7	ν Persei.....	20	3 40 11.83	+0.120	-0.153	+0.035	+0.162	+0.012	22.05	-49.99
8	ζ Persei.....	20	3 49 34.41	+0.103	-0.173	+0.031	+0.120	-0.026	44.56	-49.97
9	Boss 944.....	20	4 2 32.34	+0.092	-0.067	+0.030	+0.103	-0.013	42.49	-49.97
10	Boss 970.....	20	4 9 53.15	+0.082	-0.033	+0.034	+0.107	+0.001	3.28	-50.01
11	Boss 1030.....	20	4 21 28.71	+0.082	-0.041	+0.030	+0.095	-0.006	38.96	-49.87
12	Boss 1074.....	20	4 31 34.98	+0.092	-0.050	+0.035	+0.122	+0.003	45.17	-49.97
13	Boss 1129.....	20	4 44 33.18	+0.103	-0.064	+0.030	+0.119	-0.010	43.31	-50.01
14	ε Ursæ Minoris s. p.....	20	4 55 25.40	+0.104	-0.088	+0.397	-0.395	.....	35.65	.....
15	Boss 1222.....	20	5 5 10.03	+0.094	-0.090	+0.038	+0.136	+0.018	20.18	-50.04
16	λ Aurigæ.....	20	5 13 56.74	+0.088	-0.084	+0.034	+0.115	+0.002	6.88	-50.01
17	Groombridge 944.....	24	5 35 19.04	+0.094	-0.089	+0.308	+0.770	.....	31.13	.....
18	Boss 1457.....	20	5 48 46.50	+0.094	-0.109	+0.029	+0.104	-0.024	56.67	-49.94
19	Boss 1498.....	20	5 57 57.45	+0.090	-0.121	+0.035	+0.123	+0.011	7.61	-50.01
20	Boss 1565.....	20	6 10 45.15	+0.099	-0.067	+0.030	+0.112	-0.013	55.28	-50.00
21	μ Geminorum.....	20	6 18 36.68	+0.100	-0.056	+0.028	+0.104	-0.017	46.75	-50.05
22	51 Aurigæ.....	20	6 33 33.48	+0.088	-0.117	+0.034	+0.114	+0.002	43.55	-50.08
December 4, M.										
23	δ Andromedæ.....	20	0 35 34.11	-0.011	+0.099	+0.030	-0.013	+0.017	43.76	-50.38
24	32 H. Camelopardalis s. p.....	20	0 49 17.87	-0.011	+0.066	+0.506	+0.056	.....	28.22	.....
25	β Andromedæ.....	20	1 5 45.51	-0.015	+0.077	+0.032	-0.018	+0.006	55.13	-50.40
26	ν Piscium.....	20	1 15 35.01	-0.013	+0.084	+0.029	-0.014	+0.020	44.63	-50.41
27	Boss 321.....	20	1 23 21.16	-0.001	+0.096	+0.037	-0.001	-0.014	30.71	-50.47
28	ν Andromedæ.....	20	1 32 35.61	-0.003	+0.097	+0.034	-0.004	-0.005	45.14	-50.50
29	α Trianguli.....	20	1 49 1.58	-0.007	+0.097	+0.030	-0.008	+0.019	11.17	-50.45
30	γ Andromedæ.....	20	1 59 28.01	-0.005	+0.121	+0.035	-0.007	-0.008	37.60	-50.43
31	β Trianguli.....	20	2 5 16.41	-0.005	+0.132	+0.032	-0.006	+0.012	26.02	-50.43
32	γ Trianguli.....	20	2 13 2.98	-0.007	+0.130	+0.031	-0.008	+0.015	12.59	-50.43
33	Boss 555.....	20	2 23 13.05	-0.003	+0.091	+0.030	-0.003	+0.014	22.65	-50.44
34	Boss 610.....	20	2 37 40.28	-0.004	+0.067	+0.034	-0.005	-0.001	49.83	-50.48
35	41 Arietis.....	20	2 45 46.38	+0.005	+0.073	+0.029	+0.005	+0.017	56.01	-50.42
36	47 H. Cephei.....	20	2 55 30.83	+0.019	+0.081	+0.137	+0.077	.....	39.76	.....
37	Boss 740.....	20	3 12 51.46	+0.011	+0.082	+0.036	+0.015	-0.009	0.98	-50.52
38	Boss 774.....	20	3 19 58.37	+0.017	+0.089	+0.031	+0.020	+0.011	7.89	-50.54
39	Boss 817.....	20	3 31 14.12	+0.025	+0.089	+0.039	+0.037	-0.021	23.71	-50.47
40	ν Persei.....	20	3 40 12.49	+0.015	+0.089	+0.035	+0.020	-0.007	22.05	-50.49
December 4, L.										
41	ζ Persei.....	20	3 49 34.99	+0.027	+0.089	+0.031	+0.031	+0.013	44.57	-50.49
42	Boss 944.....	20	4 2 32.94	+0.037	+0.100	+0.030	+0.042	+0.020	42.49	-50.54
43	Boss 970.....	20	4 9 53.69	+0.036	+0.117	+0.034	+0.047	-0.004	3.28	-50.49
44	Boss 1030.....	20	4 21 29.42	+0.043	+0.123	+0.030	+0.050	+0.019	38.97	-50.55
45	Boss 1074.....	20	4 31 35.57	+0.048	+0.145	+0.035	+0.064	-0.007	45.18	-50.48
46	Boss 1129.....	20	4 44 33.78	+0.047	+0.160	+0.030	+0.054	+0.025	43.32	-50.57
47	ε Ursæ Minoris s. p.....	22	4 55 24.99	+0.037	+0.131	+0.397	-0.140	.....	35.63	.....
48	Boss 1222.....	20	5 5 10.66	+0.029	+0.131	+0.038	+0.042	-0.026	20.19	-50.52
49	λ Aurigæ.....	20	5 13 57.34	+0.028	+0.143	+0.034	+0.037	-0.004	6.90	-50.51
50	Boss 1311.....	20	5 22 48.60	+0.029	+0.140	+0.032	+0.035	+0.013	58.20	-50.48
51	Boss 1369.....	20	5 32 38.38	+0.034	+0.122	+0.029	+0.037	+0.029	47.91	-50.57
52	ο Aurigæ.....	20	5 40 6.53	+0.036	+0.115	+0.040	+0.055	-0.034	16.06	-50.53
53	Boss 1457.....	20	5 48 47.12	+0.031	+0.123	+0.029	+0.034	+0.027	56.69	-50.52
54	δ Ursæ Minoris s. p.....	22	6 0 25.63	+0.024	+0.126	+0.914	-0.236	.....	38.37	.....
55	Boss 1565.....	20	6 10 45.77	+0.026	+0.135	+0.030	+0.030	+0.025	55.30	-50.55
56	μ Geminorum.....	20	6 18 37.25	+0.020	+0.139	+0.028	+0.021	+0.042	46.78	-50.56
57	51 Aurigæ.....	20	6 33 34.10	+0.010	+0.127	+0.034	+0.013	-0.002	43.58	-50.56
58	ψ Aurigæ.....	20	6 41 24.65	+0.015	+0.117	+0.036	+0.021	-0.013	34.20	-50.49

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
December 5, L.										
1	Bradley 1672 s. p.	16	h m s 0 15 17.12	+0.030	+0.204	+1.692	-0.567	s	s 31.50	s
2	43 H. Cephei	20	0 57 39.51	+0.038	+0.192	+0.355	+0.355	. . . . .	47.95	. . . . .
3	β Andromedæ	20	1 5 46.00	+0.036	+0.153	+0.032	+0.044	+0.012	55.12	-50.97
4	ν Piscium	20	1 15 35.48	+0.044	+0.164	+0.029	+0.048	+0.039	44.62	-50.98
5	Boss 321	20	1 23 21.58	+0.044	+0.151	+0.037	+0.062	-0.022	30.70	-50.96
6	ν Andromedæ	20	1 32 36.04	+0.057	+0.120	+0.034	+0.075	-0.006	45.13	-51.01
7	α Trianguli	20	1 49 2.03	+0.076	+0.073	+0.030	+0.086	+0.014	11.17	-50.99
8	γ Andromedæ	20	1 59 28.48	+0.076	+0.049	+0.035	+0.102	-0.003	37.59	-51.02
9	β Trianguli	20	2 5 16.90	+0.067	+0.046	+0.032	+0.081	+0.004	26.02	-51.00
10	γ Trianguli	20	2 13 3.52	+0.071	+0.046	+0.031	+0.085	+0.005	12.59	-51.05
11	Boss 555	20	2 23 13.58	+0.080	+0.066	+0.030	+0.093	+0.010	22.64	-51.07
12	Boss 610	20	2 37 40.75	+0.066	+0.057	+0.034	+0.086	-0.001	49.82	-51.05
13	41 Arietis	20	2 45 46.92	+0.059	+0.031	+0.029	+0.065	+0.007	56.01	-51.01
14	Boss 672	20	2 54 51.32	+0.062	+0.025	+0.038	+0.090	-0.005	0.48	-50.96
15	Boss 713	20	3 4 33.46	+0.066	+0.027	+0.036	+0.092	-0.004	42.50	-51.08
16	Boss 740	20	3 12 51.90	+0.062	+0.023	+0.036	+0.085	-0.003	0.97	-51.05
17	Boss 774	20	3 19 58.85	+0.052	+0.029	+0.031	+0.062	+0.003	7.88	-51.07
18	Boss 817	20	3 31 14.58	+0.060	+0.039	+0.039	+0.088	-0.009	23.70	-51.00
19	ν Persei	20	3 40 13.02	+0.062	-0.015	+0.035	+0.084	+0.001	22.06	-51.08
December 5, M.										
20	ζ Persei	20	3 49 35.52	+0.047	-0.089	+0.031	+0.055	-0.013	44.58	-51.01
21	Boss 944	20	4 2 33.52	+0.034	-0.071	+0.030	+0.038	-0.014	42.49	-51.08
22	Boss 970	20	4 9 54.24	+0.033	-0.053	+0.034	+0.043	+0.002	3.28	-51.04
23	Boss 1030	20	4 21 29.98	+0.044	-0.036	+0.030	+0.051	-0.006	38.98	-51.08
24	Boss 1074	20	4 31 36.10	+0.043	-0.052	+0.035	+0.057	+0.003	45.18	-51.02
25	Boss 1129	20	4 44 34.38	+0.036	-0.063	+0.030	+0.042	-0.010	43.33	-51.11
26	ϵ Ursæ Minoris s. p.	20	4 55 26.92	+0.040	-0.092	+0.397	-0.152	. . . . .	35.62	. . . . .
27	Boss 1222	20	5 5 11.16	+0.042	-0.131	+0.038	+0.061	+0.026	20.20	-51.08
28	λ Aurigæ	20	5 13 57.88	+0.046	-0.140	+0.034	+0.060	+0.004	6.92	-51.06
29	Boss 1311	20	5 22 49.17	+0.043	-0.089	+0.032	+0.052	-0.009	58.21	-51.04
30	Boss 1369	20	5 32 38.97	+0.034	-0.037	+0.029	+0.037	-0.009	47.92	-51.11
31	σ Aurigæ	20	5 40 7.08	+0.025	-0.086	+0.040	+0.038	+0.025	16.09	-51.09
32	Boss 1457	20	5 48 47.70	+0.023	-0.096	+0.029	+0.025	-0.021	56.70	-51.03
33	δ Ursæ Minoris s. p.	24	6 0 29.36	+0.017	-0.077	+0.914	-0.167	. . . . .	38.22	. . . . .
34	μ Geminorum	20	6 18 37.89	+0.011	-0.102	+0.028	+0.011	-0.031	46.80	-51.10
35	51 Aurigæ	20	6 33 34.69	+0.036	-0.113	+0.034	+0.047	+0.001	43.61	-51.16
36	ϕ^b Aurigæ	20	6 41 25.29	+0.035	-0.130	+0.036	+0.048	+0.015	34.23	-51.16
December 8, L.										
37	β Trianguli	20	2 5 18.65	-0.046	+0.003	+0.030	-0.056	0.000	26.01	-52.61
38	γ Trianguli	20	2 13 5.18	-0.029	-0.032	+0.030	-0.035	-0.004	12.58	-52.59
39	Boss 610	20	2 37 42.46	-0.005	-0.069	+0.033	-0.007	+0.001	49.80	-52.69
40	41 Arietis	20	2 45 48.71	-0.003	-0.052	+0.028	-0.003	-0.012	56.01	-52.71
41	Boss 713	20	3 4 35.34	-0.176*	-0.042	+0.035	-0.246	+0.006	42.48	-52.66
42	Boss 740	20	3 12 53.85	-0.182	-0.029	+0.035	-0.251	+0.003	0.96	-52.68
43	Boss 774	20	3 20 0.79	-0.164	+0.004	+0.030	-0.195	0.000	7.87	-52.76
44	Boss 817	20	3 31 16.20	+0.029*	+0.053	+0.037	+0.043	-0.012	23.70	-52.57
45	ν Persei	20	3 40 14.66	+0.034	+0.054	+0.034	+0.046	-0.004	22.08	-52.66
46	ζ Persei	20	3 49 37.21	+0.032	+0.029	+0.029	+0.037	+0.004	44.60	-52.68
December 8, M.										
47	Groombridge 750	22	4 10 15.11	+0.028	+0.024	+0.307	+0.237	. . . . .	22.41	. . . . .
48	Boss 1074	20	4 31 37.83	+0.027	-0.029	+0.033	+0.036	+0.001	45.20	-52.70
49	Boss 1129	20	4 44 36.00	+0.027	-0.028	+0.029	+0.031	-0.004	43.34	-52.72
50	ϵ Ursæ Minoris s. p.	20	4 55 28.14	+0.026	-0.025	+0.389	-0.099	. . . . .	35.61	. . . . .
51	Boss 1222	20	5 5 12.91	+0.029	+0.007	+0.037	+0.042	-0.001	20.23	-52.76
52	λ Aurigæ	20	5 13 59.61	+0.032	+0.021	+0.033	+0.042	0.000	6.98	-52.71
53	Boss 1311	20	5 22 50.84	+0.029	-0.003	+0.030	+0.035	0.000	58.24	-52.67
54	Boss 1369	20	5 32 40.59	+0.030	+0.018	+0.028	+0.033	+0.004	47.96	-52.69
55	σ Aurigæ	20	5 40 8.73	+0.037	+0.011	+0.039	+0.056	-0.003	16.16	-52.66
56	Boss 1457	20	5 48 49.39	+0.051	+0.020	+0.028	+0.056	+0.004	56.74	-52.74
57	δ Ursæ Minoris s. p.	20	6 0 29.06	+0.046	+0.060	+0.897	-0.453	. . . . .	37.83	. . . . .
58	μ Geminorum	20	6 18 39.48	+0.036	+0.063	+0.027	+0.037	+0.019	46.87	-52.69
59	51 Aurigæ	20	6 33 36.36	+0.042	+0.055	+0.032	+0.054	-0.001	43.69	-52.75
60	ϕ^b Aurigæ	20	6 41 26.94	+0.039	+0.017	+0.035	+0.054	-0.002	34.32	-52.71

* Level adjusted.*

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
December 9, M.										
1	32 H. Camelopardalis s. r.	22	h m s 0 49 21.78	—0.027	—0.017	+0.487	+0.137	.....	29.11	.....
2	β Andromedæ.....	20	1 5 48.18	—0.038	—0.056	+0.029	—0.046	—0.004	55.08	—53.08
3	ν Piscium.....	20	1 15 37.61	—0.036	—0.062	+0.027	—0.039	—0.015	44.59	[—52.99]
4	ν Andromedæ.....	20	1 32 38.27	—0.029	—0.029	+0.032	—0.038	+0.001	45.09	—53.18
5	α Trianguli.....	20	1 49 4.25	—0.030	—0.011	+0.027	—0.034	—0.002	11.15	—53.09
6	γ Andromedæ.....	14	1 59 30.78	—0.023	—0.010	+0.032	—0.031	+0.001	37.57	—53.21
7	β Trianguli.....	20	2 5 19.13	—0.019	—0.014	+0.029	—0.023	—0.001	26.00	—53.13
8	Boss 610.....	20	2 37 42.96	—0.022	—0.028	+0.031	—0.029	+0.001	49.79	—53.17
9	41 Arietis.....	20	2 45 49.16	—0.025	—0.036	+0.027	—0.027	—0.008	56.01	—53.14
10	47 H. Cephei.....	22	2 55 33.13	—0.027	—0.014	+0.127	—0.109	.....	39.63	.....
11	Boss 740.....	20	3 12 54.27	—0.027	—0.070	+0.033	—0.037	+0.008	0.95	—53.32
12	Boss 774.....	20	3 20 1.08	—0.025	—0.092	+0.029	—0.030	—0.011	7.87	—53.20
13	Boss 817.....	20	3 31 16.90	—0.026	—0.098	+0.036	—0.038	+0.023	23.70	—53.22
14	ν Persei.....	20	3 40 15.31	—0.024	—0.119	+0.032	—0.032	+0.010	22.08	—53.24
15	ζ Persei.....	20	3 49 37.78	—0.013	—0.119	+0.028	—0.015	—0.018	44.61	—53.17
16	Boss 944.....	20	4 2 35.74	—0.012	—0.086	+0.027	—0.013	—0.017	42.50	—53.24
December 9, L.										
17	Boss 970.....	20	4 9 56.53	—0.011	—0.033	+0.031	—0.014	+0.001	3.29	—53.26
18	Boss 1030.....	20	4 21 32.27	—0.009	—0.047	+0.028	—0.010	—0.007	38.99	—53.29
19	Boss 1074.....	20	4 31 38.43	—0.009	—0.026	+0.032	—0.012	+0.001	45.20	—53.25
20	Boss 1129.....	20	4 44 36.66	—0.003	—0.012	+0.028	—0.003	—0.002	43.35	—53.33
21	ϵ Ursæ Minoris s. r.	22	4 55 28.95	—0.009	—0.006	+0.382	+0.034	.....	35.59	.....
22	Boss 1222.....	20	5 5 13.55	—0.009	—0.034	+0.035	—0.013	+0.007	20.25	—53.33
23	λ Aurigæ.....	20	5 14 0.19	—0.009	—0.054	+0.031	—0.012	+0.001	6.99	—53.22
24	Boss 1311.....	20	5 22 51.46	—0.007	—0.045	+0.029	—0.008	—0.004	58.26	—53.22
25	Boss 1369.....	20	5 32 41.18	—0.009	+0.015	+0.027	—0.010	+0.004	47.97	—53.23
26	σ Aurigæ.....	20	5 40 9.32	—0.017	+0.014	+0.037	—0.026	—0.004	16.19	—53.14
27	Boss 1457.....	20	5 48 49.99	—0.015	+0.012	+0.027	—0.017	—0.003	56.75	—53.25
28	Boss 1565.....	20	6 10 48.65	—0.005	+0.024	+0.028	—0.006	+0.004	55.38	—53.30
29	μ Geminorum.....	20	6 18 40.14	+0.007	+0.037	+0.026	+0.007	+0.011	46.89	—53.29
30	51 Aurigæ.....	20	6 33 36.99	+0.010	+0.028	+0.031	+0.013	0.000	43.72	—53.31
31	ϕ Aurigæ.....	20	6 41 27.58	+0.007	—0.003	+0.033	+0.010	0.000	34.35	—53.27
32	θ Geminorum.....	20	6 48 2.15	+0.010	—0.017	+0.029	+0.012	—0.002	8.89	—53.30
33	51 H. Cephei.....	22	7 1 55.54	+0.015	—0.003	+0.489	+0.203	.....	4.16	.....
December 11, M.										
34	ν Andromedæ.....	18	1 32 39.31	—0.027	—0.185	+0.029	—0.036	+0.009	45.07	—54.24
35	α Trianguli.....	16	1 49 5.44	—0.048	—0.170	+0.025	—0.054	—0.033	11.14	—54.24
36	γ Andromedæ.....	16	1 59 31.79	—0.058	—0.114	+0.030	—0.078	+0.008	37.55	—54.20
37	β Trianguli.....	16	2 5 20.25	—0.064	—0.095	+0.027	—0.078	—0.009	25.99	—54.20
38	γ Trianguli.....	18	2 13 6.98	—0.063	—0.064	+0.026	—0.075	—0.007	12.56	—54.36
39	Boss 610.....	18	2 37 44.14	—0.048	—0.119	+0.029	—0.062	+0.002	49.79	—54.32
40	47 H. Cephei.....	14	2 55 33.64	—0.041	—0.105	+0.116	—0.165	.....	39.56	.....
41	Boss 713.....	20	3 4 36.82	—0.042	—0.109	+0.031	—0.059	+0.015	42.48	—54.33
42	Boss 740.....	16	3 12 55.22	—0.043	—0.137	+0.030	—0.059	+0.016	0.96	—54.25
43	Boss 817.....	20	3 31 18.00	—0.049	—0.123	+0.033	—0.072	+0.029	23.71	—54.28
44	ν Persei.....	16	3 40 16.43	—0.051	—0.120	+0.030	—0.069	+0.010	22.10	—54.30
45	ζ Persei.....	20	3 49 38.86	—0.049	—0.091	+0.026	—0.057	—0.014	44.63	—54.18
46	Boss 944.....	16	4 2 36.78	—0.059	—0.071	+0.025	—0.066	—0.014	42.52	—54.20
47	Groombridge 750.....	12	4 10 15.77	—0.054	—0.083	+0.270	—0.457	.....	22.46	.....
December 11, L.										
48	Boss 1030.....	20	4 21 33.32	—0.039	—0.014	+0.026	—0.045	—0.002	39.02	—54.28
49	Boss 1074.....	20	4 31 39.50	—0.042	—0.016	+0.029	—0.056	+0.001	45.23	—54.24
50	Boss 1129.....	20	4 44 37.73	—0.047	—0.032	+0.026	—0.054	—0.005	43.38	—54.32
51	ϵ Ursæ Minoris s. r.	24	4 55 29.76	—0.061	—0.050	+0.367	+0.231	.....	35.55	.....
52	Boss 1222.....	20	5 5 14.58	—0.068	—0.075	+0.032	—0.099	+0.015	20.28	—54.25
53	λ Aurigæ.....	20	5 14 1.35	—0.064	—0.071	+0.029	—0.084	+0.002	7.03	—54.27
54	Boss 1311.....	20	5 22 52.63	—0.063	—0.051	+0.027	—0.076	—0.005	58.30	—54.28
55	Boss 1369.....	20	5 32 42.41	—0.058	—0.041	+0.025	—0.064	—0.010	48.01	—54.35
56	σ Aurigæ.....	20	5 40 10.48	—0.055	—0.064	+0.034	—0.084	+0.019	16.24	—54.21
57	Boss 1457.....	20	5 48 51.19	—0.056	—0.047	+0.025	—0.062	—0.010	56.80	—54.34
58	Boss 1498.....	20	5 58 2.01	—0.054	—0.036	+0.030	—0.074	+0.003	7.76	—54.21
59	Boss 1565.....	20	6 10 49.82	—0.062	—0.047	+0.025	—0.070	—0.009	55.42	—54.35
60	μ Geminorum.....	20	6 18 41.32	—0.067	—0.031	+0.024	—0.070	—0.009	46.93	—54.33

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
1	51 Aurigæ.....	20	^h ^m ^s 6 33 38.18	−0.056	−0.066	+0.028	−0.073	+0.001	43.77	−54.37
2	ϕ^s Aurigæ.....	20	6 41 28.78	−0.055	−0.086	+0.030	−0.076	+0.010	34.40	−54.34
3	θ Geminorum.....	20	6 48 3.37	−0.057	−0.071	+0.027	−0.069	−0.007	8.94	−54.38
4	51 H. Cephei.....	22	7 1 57.60	−0.057	−0.075	+0.448	−0.077	.....	4.77	.....
December 12, L.										
5	32 H. Camelopardalis s.p.	24	0 49 23.65	+0.071	+0.036	+0.469	−0.360	.....	29.68	.....
6	43 H. Cephei.....	22	0 57 40.68	+0.058	+0.032	+0.301	+0.542	.....	46.49	.....
7	Boss 321.....	20	1 23 25.30	+0.053	+0.033	+0.031	+0.074	−0.005	30.61	−54.79
8	ν Andromedæ.....	20	1 32 39.76	+0.066	+0.023	+0.029	+0.087	−0.001	45.06	−54.82
9	α Trianguli.....	20	1 49 5.79	+0.081	+0.032	+0.025	+0.091	+0.006	11.13	−54.78
10	γ Andromedæ.....	20	1 59 32.17	+0.082	+0.026	+0.030	+0.110	−0.002	37.55	−54.76
11	β Trianguli.....	20	2 5 20.63	+0.076	+0.016	+0.027	+0.092	+0.001	25.99	−54.76
12	γ Trianguli.....	20	2 13 7.29	+0.078	+0.039	+0.026	+0.093	+0.004	12.56	−54.85
13	Boss 555.....	20	2 23 17.38	+0.089	+0.016	+0.026	+0.103	+0.002	22.61	−54.90
14	41 Arietis.....	20	2 45 50.76	+0.101	−0.038	+0.025	+0.111	−0.009	56.01	−54.88
15	Boss 672.....	20	2 54 55.04	+0.104	−0.109	+0.032	+0.151	+0.022	0.46	−54.78
16	Boss 740.....	20	3 12 55.64	+0.103	−0.199	+0.030	+0.142	+0.023	0.97	−54.86
17	Boss 774.....	20	3 20 2.66	+0.101	−0.233	+0.026	+0.120	−0.028	7.89	−54.89
18	Boss 817.....	20	3 31 18.28	+0.080	−0.221	+0.033	+0.118	+0.052	23.72	−54.76
19	ν Persei.....	20	3 40 16.71	+0.074	−0.214	+0.030	+0.100	+0.017	22.10	−54.76
20	ζ Persei.....	20	3 49 39.32	+0.095	−0.195	+0.026	+0.111	−0.029	44.63	−54.80
21	Boss 944.....	20	4 2 37.28	+0.090	−0.147	+0.025	+0.101	−0.029	42.53	−54.85
22	Groombridge 750.....	20	4 10 14.30	+0.095	−0.199	+0.270	+0.805	.....	22.49	.....
23	Boss 1030.....	20	4 21 33.78	+0.110	−0.262	+0.026	+0.127	−0.041	39.03	−54.86
December 12, M.										
24	Boss 1074.....	20	4 31 39.94	+0.102	−0.216	+0.029	+0.135	+0.011	45.25	−54.87
25	Boss 1129.....	20	4 44 38.21	+0.090	−0.235	+0.026	+0.104	−0.037	43.40	−54.90
26	ϵ Ursæ Minoris s. p.....	22	4 55 31.79	+0.089	−0.260	+0.367	−0.338	.....	35.52	.....
27	Boss 1222.....	20	5 5 15.06	+0.085	−0.262	+0.032	+0.123	+0.053	20.31	−54.96
28	λ Aurigæ.....	20	5 14 1.74	+0.084	−0.232	+0.029	+0.110	+0.006	7.05	−54.83
29	Boss 1311.....	20	5 22 53.05	+0.094	−0.131	+0.027	+0.114	−0.013	58.32	−54.86
30	Groombridge 944.....	24	5 35 25.13	+0.098	−0.107	+0.261	+0.804	.....	32.04	.....
31	Boss 1457.....	20	5 48 51.61	+0.095	−0.141	+0.025	+0.105	−0.031	56.82	−54.89
32	Boss 1498.....	20	5 58 2.43	+0.092	−0.171	+0.030	+0.125	+0.016	7.79	−54.81
33	Boss 1565.....	20	6 10 50.17	+0.092	−0.191	+0.025	+0.104	−0.036	55.45	−54.81
34	μ Geminorum.....	20	6 18 41.67	+0.082	−0.178	+0.024	+0.085	−0.054	46.95	−54.77
35	51 Aurigæ.....	20	6 33 38.54	+0.069	−0.210	+0.028	+0.089	+0.003	43.80	−54.86
36	ϕ^s Aurigæ.....	20	6 41 29.07	+0.078	−0.177	+0.030	+0.107	+0.020	34.43	−54.80
37	θ Geminorum.....	20	6 48 3.64	+0.085	−0.170	+0.027	+0.102	−0.017	8.97	−54.78
38	51 H. Cephei.....	20	7 1 56.47	+0.082	−0.178	+0.448	+1.112	.....	5.11	.....
December 13, M.										
39	Boss 555.....	20	2 23 18.02	−0.049	+0.013	+0.025	−0.057	+0.002	22.61	−55.38
40	Boss 610.....	20	2 37 45.17	−0.036	−0.055	+0.027	−0.047	+0.001	49.80	−55.35
41	41 Arietis.....	20	2 45 51.23	−0.048	−0.047	+0.024	−0.053	−0.011	56.00	−55.19
42	47 H. Cephei.....	16	2 55 35.31	−0.044	−0.007	+0.111	−0.178	.....	39.49	.....
43	Boss 740.....	18	3 12 56.20	−0.040	−0.091	+0.029	−0.055	+0.010	0.98	−55.20
44	Boss 774.....	20	3 20 3.24	−0.044	−0.035	+0.025	−0.052	−0.004	7.90	−55.31
45	Boss 817.....	20	3 31 19.00	−0.046	−0.008	+0.031	−0.068	+0.002	23.73	−55.23
46	ν Persei.....	18	3 40 17.34	−0.046	−0.076	+0.028	−0.062	+0.006	22.10	−55.21
47	ζ Persei.....	20	3 49 39.89	−0.043	−0.033	+0.025	−0.050	−0.005	44.63	−55.23
48	Groombridge 750.....	24	4 10 18.21	−0.039	−0.029	+0.258	−0.330	.....	22.51	.....
December 13, L.										
49	Boss 1030.....	20	4 21 34.42	−0.033	−0.082	+0.025	−0.038	−0.013	39.05	−55.34
50	Boss 1074.....	20	4 31 40.66	−0.030	−0.038	+0.028	−0.040	+0.002	45.27	−55.38
51	Boss 1129.....	20	4 44 38.80	−0.038	−0.034	+0.025	−0.044	−0.005	43.42	−55.36
52	ϵ Ursæ Minoris s. p.....	22	4 55 31.07	−0.044	−0.039	+0.360	+0.167	.....	35.48	.....
53	Boss 1222.....	20	5 5 15.69	−0.037	−0.064	+0.031	−0.054	+0.013	20.33	−55.35
54	λ Aurigæ.....	20	5 14 2.41	−0.023	−0.066	+0.027	−0.030	+0.002	7.06	−55.35
55	Boss 1311.....	20	5 22 53.78	−0.025	−0.065	+0.025	−0.030	−0.006	58.34	−55.43
56	Boss 1369.....	20	5 32 43.47	−0.038	−0.040	+0.024	−0.042	−0.009	48.05	−55.39
57	ϕ Aurigæ.....	20	5 40 11.64	−0.038	−0.046	+0.033	−0.058	−0.013	16.28	−55.35

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
			h m s	s	s	s	s	s	s	s
1	Boss 1457.....	20	5 48 52.22	-0.033	-0.054	+0.024	-0.036	-0.012	56.84	-55.36
2	Boss 1498.....	20	5 58 3.19	-0.023	-0.083	+0.029	-0.031	+0.008	7.82	-55.38
3	Boss 1565.....	20	6 10 50.91	-0.034	-0.103	+0.024	-0.039	-0.019	55.48	-55.40
4	μ Geminorum.....	20	6 18 42.42	-0.037	-0.076	+0.023	-0.038	-0.023	46.97	-55.41
5	δ Aurigæ.....	20	6 33 39.19	-0.023	-0.099	+0.027	-0.030	+0.001	43.82	-55.37
6	ψ Aurigæ.....	20	6 41 29.84	-0.021	-0.064	+0.029	-0.029	+0.007	34.46	-55.39
7	θ Geminorum.....	20	6 48 4.40	-0.024	+0.032	+0.025	-0.029	+0.003	8.99	-55.41
8	Boss 1840.....	20	7 6 37.05	-0.027	+0.054	+0.024	-0.031	+0.009	41.60	-55.45
9	25 H. Camelopardalis.....	28	7 14 9.22	-0.021	+0.019	+0.163	-0.118	.....	14.14	.....
December 15, L.										
10	32 H. Camelopardalis s.p.	22	0 49 26.46	+0.053	+0.038	+0.450	-0.269	.....	30.25	.....
11	ν Piscium.....	20	1 15 40.88	+0.050	+0.042	+0.022	+0.055	+0.010	44.54	-56.43
12	Boss 321.....	20	1 23 26.85	+0.038	+0.036	+0.028	+0.053	-0.005	30.59	-56.34
13	ν Andromedæ.....	20	1 32 41.30	+0.043	+0.037	+0.026	+0.057	-0.002	45.03	-56.35
14	α Trianguli.....	20	1 49 7.37	+0.048	+0.020	+0.023	+0.054	+0.004	11.11	-56.34
15	γ Andromedæ.....	20	1 59 33.74	+0.041	-0.014	+0.027	+0.055	+0.001	37.52	-56.30
16	β Trianguli.....	20	2 5 22.30	+0.037	-0.017	+0.024	+0.045	-0.002	25.97	-56.40
17	γ Trianguli.....	20	2 13 8.96	+0.019	+0.002	+0.024	+0.023	0.000	12.54	-56.47
18	Boss 555.....	20	2 23 19.06	+0.010	-0.018	+0.023	+0.012	-0.003	22.62	-56.47
19	Boss 610.....	20	2 37 46.12	+0.023	-0.109	+0.026	+0.030	+0.002	49.80	-56.38
20	41 Arietis.....	20	2 45 52.44	+0.032	-0.165	+0.022	+0.035	-0.039	56.00	-56.46
21	Boss 672.....	20	2 54 56.73	+0.035	-0.199	+0.029	+0.051	+0.040	0.47	-56.38
22	Boss 713.....	20	3 4 38.82	+0.033	-0.223	+0.028	+0.046	+0.031	42.51	-56.41
23	Boss 740.....	20	3 12 57.31	+0.038	-0.217	+0.028	+0.052	+0.025	0.99	-56.42
24	Boss 774.....	20	3 20 4.35	+0.052	-0.206	+0.024	+0.062	-0.025	7.92	-56.49
25	Boss 817.....	20	3 31 20.00	+0.052	-0.189	+0.030	+0.077	+0.044	23.75	-56.40
26	ν Persei.....	20	3 40 18.41	+0.041	-0.203	+0.027	+0.055	+0.016	22.11	-56.40
27	ζ Persei.....	20	3 49 41.02	+0.032	-0.187	+0.024	+0.037	-0.028	44.64	-56.41
28	Boss 944.....	20	4 2 38.96	+0.041	-0.158	+0.023	+0.046	-0.031	42.57	-56.43
29	Groombridge 750.....	18	4 10 16.58	+0.057	-0.147	+0.246	+0.483	.....	22.52	.....
30	Boss 1030.....	20	4 21 35.49	+0.053	-0.159	+0.023	+0.061	-0.025	39.08	-56.47
31	Boss 1074.....	20	4 31 41.58	+0.042	-0.195	+0.027	+0.056	+0.010	45.30	-56.37
December 15, M.										
32	Boss 1129.....	20	4 44 39.80	+0.033	-0.147	+0.023	+0.038	-0.023	43.46	-56.38
33	ϵ Ursæ Minoris s. p.	20	4 55 32.92	+0.023	-0.111	+0.353	-0.087	.....	35.44	.....
34	Boss 1222.....	20	5 5 16.72	+0.023	-0.149	+0.029	+0.033	+0.030	20.38	-56.43
35	λ Aurigæ.....	20	5 14 3.47	+0.028	-0.198	+0.026	+0.037	+0.005	7.09	-56.45
36	Boss 1311.....	20	5 22 54.71	+0.032	-0.126	+0.024	+0.039	-0.012	58.39	-56.37
37	Boss 1369.....	20	5 32 44.49	+0.040	-0.015	+0.022	+0.044	-0.004	48.10	-56.45
38	σ Aurigæ.....	20	5 40 12.61	+0.029	-0.097	+0.031	+0.044	+0.028	16.32	-56.39
39	Boss 1457.....	20	5 48 53.26	+0.020	-0.144	+0.023	+0.022	-0.032	56.89	-56.38
40	Boss 1498.....	20	5 58 4.29	+0.025	-0.114	+0.027	+0.034	+0.011	7.88	-56.48
41	Boss 1565.....	20	6 10 51.97	+0.019	-0.136	+0.023	+0.022	-0.025	55.53	-56.46
42	51 Aurigæ.....	20	6 33 40.35	+0.017	-0.142	+0.026	+0.022	+0.002	43.87	-56.53
43	ψ Aurigæ.....	20	6 41 30.98	+0.013	-0.187	+0.028	+0.018	+0.021	34.51	-56.54
44	θ Geminorum.....	20	6 48 5.43	+0.012	-0.124	+0.024	+0.014	-0.013	9.04	-56.41
45	Boss 1840.....	20	7 6 38.12	+0.009	-0.164	+0.023	+0.010	-0.028	41.66	-56.47
46	25 H. Camelopardalis.....	22	7 14 10.33	-0.006	-0.084	+0.155	-0.034	.....	14.38	.....
47	ρ Geminorum.....	20	7 24 32.98	-0.018	-0.101	+0.024	-0.021	-0.014	36.52	-56.45
December 16, M.										
48	43 H. Cephei.....	20	0 57 42.54	+0.019	+0.023	+0.260	+0.177	.....	45.47	.....
49	Boss 321.....	20	1 23 27.38	+0.010	-0.038	+0.027	+0.014	+0.006	30.58	-56.85
50	ν Andromedæ.....	20	1 32 41.86	+0.018	-0.079	+0.025	+0.024	+0.004	45.02	-56.89
51	α Trianguli.....	20	1 49 7.88	+0.016	-0.018	+0.022	+0.018	-0.003	11.10	-56.82
52	γ Andromedæ.....	20	1 59 34.34	+0.017	-0.039	+0.026	+0.023	+0.003	37.51	-56.88
53	β Trianguli.....	20	2 5 22.71	+0.021	-0.004	+0.023	+0.025	0.000	25.96	-56.80
December 16, L.										
54	Boss 1129.....	20	4 44 40.32	+0.065	-0.041	+0.022	+0.075	-0.006	43.47	-56.94
55	Boss 1222.....	20	5 5 17.05	+0.067	-0.066	+0.028	+0.097	+0.013	20.40	-56.79
56	λ Aurigæ.....	20	5 14 3.92	+0.076	-0.080	+0.025	+0.099	+0.002	7.10	-56.95

TABLE IX.—*Observations for Clock Corrections—Continued.*

WASHINGTON I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
December 17, L.										
1	β Andromedæ.....	20	h m s 1 5 52.24	+0.080	-0.027	+0.023	+0.098	.....	55.00	.....
2	α Ursæ Minoris.....	8	1 29 45.38	+0.101	-0.042	+0.949	+3.247	.....	52.12	.....
3	β Trianguli.....	20	2 5 23.25	+0.085	-0.032	+0.023	+0.103	.....	25.96	.....
December 18, L.										
4	α Ursæ Minoris.....	24	1 29 42.01	+0.013*	-0.095	+0.999	+0.418	.....	51.08	.....
5	α Trianguli.....	22	1 49 9.08	-0.004	-0.084	+0.023	-0.005	-0.016	11.09	-57.99
6	γ Andromedæ.....	20	1 59 35.41	-0.013	-0.085	+0.027	-0.017	+0.006	37.49	-57.94
7	β Trianguli.....	20	2 5 23.95	-0.015	-0.083	+0.024	-0.018	-0.008	25.95	-58.00
8	γ Trianguli.....	20	2 13 10.53	-0.017	-0.055	+0.024	-0.020	-0.006	12.52	-58.01
9	Boss 555.....	20	2 23 20.62	-0.013	-0.093	+0.023	-0.015	-0.014	22.60	-58.01
10	Boss 610.....	20	2 37 47.81	-0.017	-0.116	+0.026	-0.022	+0.002	49.78	-58.04
11	41 Arietis.....	20	2 45 54.07	-0.025	-0.116	+0.022	-0.027	-0.027	55.99	-58.05
12	Boss 672.....	20	2 54 58.33	-0.025	-0.098	+0.029	-0.036	+0.020	0.45	-57.89
13	Boss 713.....	20	3 4 40.47	-0.026	-0.119	+0.028	-0.036	+0.016	42.49	-57.99
14	Boss 740.....	20	3 12 59.03	0.000	-0.172	+0.028	0.000	+0.014	0.98	-58.09
15	Boss 774.....	20	3 20 5.97	+0.009	-0.103	+0.024	+0.011	-0.012	7.91	-58.08
16	Boss 817.....	20	3 31 21.60	-0.013	-0.094	+0.030	-0.019	+0.022	23.74	-57.89
17	ν Persei.....	20	3 40 20.08	-0.015	-0.125	+0.027	-0.020	+0.010	22.12	-57.98
18	ζ Persei.....	20	3 49 42.70	-0.015	-0.130	+0.024	-0.017	-0.019	44.65	-58.04
19	Boss 944.....	20	4 2 40.67	-0.015	-0.108	+0.023	-0.017	-0.021	42.58	-58.07
20	Groombridge 750.....	12	4 10 18.86	-0.014	-0.151	+0.246	-0.119	.....	22.38	.....
21	Boss 1030.....	20	4 21 37.10	-0.016	-0.129	+0.023	-0.019	-0.020	39.10	-57.98
22	Boss 1074.....	20	4 31 43.38	-0.029	-0.081	+0.027	-0.038	+0.004	45.32	-58.05
December 18, M.										
23	Boss 1129.....	20	4 44 41.51	-0.034	-0.118	+0.023	-0.039	-0.018	43.48	-58.00
24	ϵ Ursæ Minoris s. P.....	20	4 55 33.88	-0.037	-0.126	+0.353	+0.140	.....	35.48	.....
25	Boss 1222.....	20	5 5 18.40	-0.040	-0.127	+0.029	-0.058	+0.026	20.42	-57.98
26	λ Aurigæ.....	20	5 14 5.24	-0.043	-0.179	+0.026	-0.056	+0.004	7.13	-58.08
27	Boss 1311.....	20	5 22 56.46	-0.048	-0.118	+0.024	-0.058	-0.011	58.43	-57.98
28	Boss 1369.....	20	5 32 46.17	-0.038	-0.056	+0.022	-0.042	-0.013	48.14	-58.00
29	σ Aurigæ.....	20	5 40 14.42	-0.036	-0.117	+0.031	-0.055	+0.034	16.38	-58.05
30	Boss 1457.....	20	5 48 54.97	-0.046	-0.111	+0.023	-0.051	-0.025	56.94	-57.98
31	Boss 1498.....	20	5 58 5.94	-0.051	-0.144	+0.027	-0.069	+0.014	7.94	-57.97
32	Boss 1565.....	20	6 10 53.72	-0.057	-0.168	+0.023	-0.065	-0.031	55.59	-58.06
33	μ Geminorum.....	20	6 18 45.12	-0.056	-0.124	+0.022	-0.058	-0.038	47.07	-57.98
34	51 Aurigæ.....	20	6 33 42.12	-0.059	-0.119	+0.026	-0.076	+0.002	43.94	-58.13
35	ϕ^5 Aurigæ.....	20	6 41 32.71	-0.066	-0.132	+0.028	-0.091	+0.015	34.58	-58.08
36	θ Geminorum.....	20	6 48 7.18	-0.067	-0.125	+0.024	-0.081	-0.013	9.11	-58.00
37	Boss 1840.....	20	7 6 39.87	-0.070	-0.103	+0.023	-0.080	-0.018	41.74	-58.05
38	25 H. Camelopardalis.....	22	7 14 12.67	-0.075	-0.128	+0.155	-0.422	.....	14.73	.....
39	ρ Geminorum.....	20	7 24 34.76	-0.075	-0.126	+0.024	-0.088	-0.018	36.60	-58.08
December 19, M.										
40	32 H. Camelopardalis s. P.....	20	0 49 29.02	-0.078	-0.025	+0.450	+0.396	.....	31.04	.....
41	β Andromedæ.....	20	1 5 53.54	-0.073	-0.051	+0.024	-0.089	-0.004	54.98	-58.49
42	ν Piscium.....	20	1 15 42.98	-0.070	-0.049	+0.022	-0.077	-0.012	44.50	-58.41
43	ν Andromedæ.....	20	1 32 43.64	-0.068	-0.049	+0.026	-0.090	+0.002	44.98	-58.60
44	α Trianguli.....	20	1 49 9.54	-0.061	-0.093	+0.023	-0.069	-0.018	11.08	-58.40
45	γ Andromedæ.....	20	1 59 36.02	-0.056	-0.084	+0.027	-0.075	+0.006	37.48	-58.50
46	β Trianguli.....	20	2 5 24.48	-0.054	-0.043	+0.024	-0.065	-0.004	25.94	-58.49
47	γ Trianguli.....	20	2 13 11.01	-0.066	-0.049	+0.024	-0.079	-0.006	12.51	-58.44
48	Boss 555.....	20	2 23 21.14	-0.075	-0.087	+0.023	-0.087	-0.013	22.58	-58.48
49	Boss 610.....	20	2 37 48.38	-0.076	-0.107	+0.026	-0.099	+0.002	49.77	-58.54
50	41 Arietis.....	20	2 45 54.49	-0.070	-0.120	+0.022	-0.077	-0.028	55.99	-58.42
51	Boss 672.....	20	2 54 58.88	-0.058	-0.109	+0.029	-0.084	+0.022	0.44	-58.41
52	Boss 740.....	20	3 12 59.58	-0.057	-0.134	+0.028	-0.079	+0.015	0.97	-58.57
53	Boss 774.....	20	3 20 6.50	-0.061	-0.162	+0.024	-0.073	-0.019	7.90	-58.53
54	Boss 817.....	20	3 31 22.26	-0.058	-0.134	+0.030	-0.085	+0.031	23.73	-58.51
55	ν Persei.....	20	3 40 20.75	-0.053	-0.124	+0.027	-0.072	+0.010	22.12	-58.59
56	ζ Persei.....	20	3 49 43.18	-0.062	-0.142	+0.024	-0.072	-0.021	44.65	-58.46
57	Boss 944.....	20	4 2 41.14	-0.062	-0.102	+0.023	-0.070	-0.020	42.58	-58.49
58	Boss 970.....	20	4 10 1.98	-0.059	-0.086	+0.026	-0.077	+0.003	3.38	-58.55
59	Boss 1030.....	20	4 21 37.61	-0.069	-0.096	+0.023	-0.080	-0.015	39.09	-58.45
60	Boss 1074.....	20	4 31 43.90	-0.068	-0.103	+0.027	-0.090	+0.005	45.32	-58.52

* Level adjusted.

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.		
				Level.	Azi-muth.	Contact	Level.	Azi-muth.				
			h m s	s	s	s	s	s	s	s		
December 19, L.												
1	Boss 1129.....	20	4 44 42.13	-0.052	-0.087	+0.023	-0.060	-0.014	43.48	-58.60		
2	ε Ursæ Minoris s. p.	24	4 55 34.38	-0.045	-0.052	+0.353	+0.171	.....	35.52	.....	
3	Boss 1222.....	20	5 5 19.06	-0.040	-0.082	+0.029	-0.058	+0.017	20.42	-58.63		
4	λ Aurigæ.....	20	5 14 5.75	-0.030	-0.102	+0.026	-0.039	+0.003	7.15	-58.59		
5	Boss 1311.....	20	5 22 57.02	-0.023	-0.097	+0.024	-0.028	-0.009	58.43	-58.58		
6	Boss 1369.....	20	5 32 46.74	-0.021	-0.113	+0.022	-0.023	-0.026	48.15	-58.56		
7	o Aurigæ.....	20	5 40 14.84	-0.030	-0.091	+0.031	-0.046	+0.027	16.39	-58.46		
8	Boss 1457.....	20	5 48 55.53	-0.028	-0.097	+0.023	-0.031	-0.021	56.95	-58.55		
9	Boss 1498.....	20	5 58 6.53	-0.025	-0.122	+0.027	-0.034	+0.012	7.95	-58.59		
10	Boss 1565.....	20	6 10 54.23	-0.029	-0.110	+0.023	-0.033	-0.021	55.60	-58.60		
11	μ Geminorum.....	20	6 18 45.71	-0.021	-0.112	+0.022	-0.022	-0.034	47.08	-58.60		
12	51 Aurigæ.....	20	6 33 42.60	-0.014	-0.103	+0.026	-0.018	+0.001	43.96	-58.65		
13	ψ Aurigæ.....	20	6 41 33.21	-0.014	-0.112	+0.028	-0.019	+0.013	34.61	-58.62		
14	θ Geminorum.....	20	6 48 7.76	-0.013	-0.110	+0.024	-0.016	-0.011	9.13	-58.63		
15	Boss 1840.....	20	7 6 40.44	-0.022	-0.077	+0.023	-0.025	-0.013	41.76	-58.66		
16	25 H. Camelopardalis....	22	7 14 13.12	-0.025	-0.070	+0.155	-0.140	.....	14.85	.....	
17	ρ Geminorum.....	20	7 24 35.32	-0.019	-0.082	+0.024	-0.022	-0.012	36.62	-58.69		
18	Boss 2001.....	20	7 34 33.72	-0.018	-0.072	+0.024	-0.022	-0.006	35.08	-58.64		
December 20, L.												
19	β Andromedæ.....	20	1 5 54.01	-0.080	+0.055	+0.026	-0.098	+0.004	54.96	-58.98		
20	υ Piscium.....	20	1 15 43.64	-0.074	+0.064	+0.024	-0.081	+0.015	44.49	-59.11		
21	α Ursæ Minoris.....	12	1 29 51.43	-0.086	+0.064	+1.049	-2.765	.....	49.12	.....	
22	γ Andromedæ.....	20	1 59 36.57	-0.082	+0.058	+0.028	-0.110	-0.004	37.47	-59.01		
23	β Trianguli.....	20	2 5 25.00	-0.069	+0.091	+0.026	-0.084	+0.008	25.93	-59.02		
24	γ Trianguli.....	20	2 13 11.62	-0.074	+0.087	+0.025	-0.088	+0.010	12.50	-59.07		
25	Boss 555.....	20	2 23 21.64	-0.080	+0.044	+0.025	-0.093	+0.007	22.57	-59.01		
26	Boss 610.....	20	2 37 48.88	-0.068	+0.026	+0.027	-0.089	-0.001	49.75	-59.07		
27	41 Arietis.....	20	2 45 54.99	-0.060	+0.032	+0.024	-0.066	+0.007	55.98	-58.97		
28	Boss 672.....	20	2 54 59.45	-0.063	+0.006	+0.031	-0.091	-0.001	0.42	-58.97		
29	Boss 713.....	20	3 4 41.54	-0.070	-0.016	+0.029	-0.098	+0.002	42.47	-59.00		
30	Boss 740.....	20	3 13 0.03	-0.066	-0.015	+0.029	-0.091	+0.002	0.96	-59.01		
31	Boss 774.....	20	3 20 6.99	-0.050	+0.011	+0.025	-0.059	+0.001	7.90	-59.06		
32	Boss 817.....	20	3 31 22.71	-0.051	+0.019	+0.031	-0.075	-0.004	23.72	-58.94		
33	ν Persei.....	20	3 40 21.20	-0.046	-0.015	+0.028	-0.062	+0.001	22.12	-59.05		
34	ζ Persei.....	20	3 49 43.77	-0.043	+0.011	+0.025	-0.050	+0.002	44.65	-59.10		
35	Boss 944.....	20	4 2 41.74	-0.042	+0.037	+0.024	-0.047	+0.007	42.58	-59.14		
36	Groombridge 750.....	14	4 10 21.59	-0.034	+0.013	+0.258	-0.288	.....	22.22	.....	
37	Boss 1030.....	20	4 21 38.24	-0.032	+0.026	+0.025	-0.037	+0.004	39.09	-59.14		
38	Boss 1074.....	20	4 31 44.40	-0.034	+0.041	+0.028	-0.045	-0.002	45.32	-59.06		
39	Boss 1129.....	20	4 44 42.59	-0.037	+0.030	+0.025	-0.043	+0.005	43.48	-59.10		
40	ε Ursæ Minoris s. p.	20	4 55 34.48	-0.044	-0.061	+0.360	+0.167	.....	35.56	.....	
December 20, M.												
41	Boss 1222.....	20	5 5 19.61	-0.054	-0.156	+0.031	-0.078	+0.032	20.42	-59.17		
42	λ Aurigæ.....	20	5 14 6.32	-0.053	-0.167	+0.027	-0.069	+0.004	7.15	-59.13		
43	Boss 1311.....	20	5 22 57.54	-0.049	-0.080	+0.025	-0.059	-0.008	58.44	-59.06		
44	Boss 1369.....	20	5 32 47.26	-0.058	+0.028	+0.024	-0.064	+0.007	48.15	-59.08		
45	o Aurigæ.....	20	5 40 15.55	-0.060	+0.005	+0.033	-0.091	-0.001	16.41	-59.08		
46	Boss 1457.....	20	5 48 56.04	-0.053	-0.043	+0.024	-0.059	-0.010	56.96	-59.04		
47	Boss 1498.....	20	5 58 7.14	-0.053	-0.067	+0.029	-0.072	+0.006	7.96	-59.14		
48	Boss 1565.....	20	6 10 54.80	-0.056	-0.069	+0.024	-0.064	-0.013	55.61	-59.14		
49	μ Geminorum.....	20	6 18 46.22	-0.048	-0.007	+0.023	-0.050	-0.002	47.10	-59.09		
50	51 Aurigæ.....	20	6 33 43.24	-0.040	-0.067	+0.027	-0.052	+0.001	43.98	-59.24		
51	ψ Aurigæ.....	20	6 41 33.88	-0.047	-0.139	+0.029	-0.065	+0.016	34.63	-59.23		
52	θ Geminorum.....	20	6 48 8.26	-0.049	-0.111	+0.025	-0.059	-0.011	9.16	-59.05		
53	Boss 1840.....	20	7 6 40.95	-0.046	-0.050	+0.024	-0.053	-0.009	41.77	-59.14		
54	25 H. Camelopardalis....	22	7 14 13.84	-0.039	-0.057	+0.163	-0.218	.....	14.96	.....	
55	ρ Geminorum.....	20	7 24 35.89	-0.043	-0.069	+0.025	-0.050	-0.010	36.65	-59.20		
56	Boss 2001.....	20	7 34 34.29	-0.050	-0.097	+0.026	-0.061	-0.009	35.10	-59.15		
December 22, M.												
58	α Ursæ Minoris.....	18	1 29 41.61	+0.017	-0.090	+1.099	+0.547	.....	47.42	.....	
59	α Trianguli.....	20	1 49 11.13	+0.026	-0.100	+0.025	+0.029	-0.019	11.05	-60.11		
60	γ Andromedæ.....	20	1 59 37.53	+0.034	-0.122	+0.030	+0.046	+0.009	37.45	-60.17		

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—				App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.			
			h m s	s	s	s	s	s	s	s	s
1	β Trianguli.....	20	2 5 25.97	+0.029	-0.108	+0.027	+0.035	-0.010	25.91	-60.11	
2	γ Trianguli.....	20	2 13 12.54	+0.025	-0.077	+0.026	+0.030	-0.009	12.49	-60.10	
3	Boss 555.....	20	2 23 22.64	+0.015	-0.110	+0.026	+0.017	-0.017	22.55	-60.12	
4	Boss 610.....	20	2 37 49.96	+0.011	-0.157	+0.029	+0.014	+0.003	49.73	-60.28	
5	41 Arietis.....	20	2 45 56.11	+0.021	-0.150	+0.025	+0.023	-0.035	55.98	-60.14	
6	Boss 672.....	20	2 55 0.44	+0.027	-0.180	+0.032	+0.039	+0.036	0.40	-60.15	
7	Boss 713.....	20	3 4 42.60	+0.026	-0.183	+0.031	+0.036	+0.025	42.45	-60.24	
8	Boss 740.....	20	3 13 1.26	+0.023	-0.126	+0.030	+0.032	+0.014	0.94	-60.40	
9	Boss 817.....	20	3 31 23.88	+0.016	-0.134	+0.033	+0.024	+0.031	23.70	-60.27	
December 23, L.											
10	α Trianguli.....	20	1 49 11.76	-0.084	+0.071	+0.026	-0.095	+0.014	11.04	-60.66	
11	γ Andromedæ.....	20	1 59 38.18	-0.086	+0.057	+0.031	-0.115	-0.004	37.43	-60.66	
12	β Trianguli.....	20	2 5 26.66	-0.082	+0.065	+0.028	-0.099	+0.006	25.90	-60.69	
13	γ Trianguli.....	20	2 13 13.24	-0.069	+0.075	+0.028	-0.082	+0.008	12.48	-60.71	
14	Boss 555.....	20	2 23 23.36	-0.054	+0.077	+0.027	-0.063	+0.012	22.54	-60.80	
15	Boss 610.....	20	2 37 50.51	-0.054	+0.117	+0.030	-0.070	-0.002	49.72	-60.75	
16	41 Arietis.....	20	2 45 56.74	-0.052	+0.110	+0.026	-0.057	+0.026	55.97	-60.76	
17	47 H. Cephei.....	20	2 55 39.98	-0.056	+0.022	+0.121	-0.226	.....	39.02	.....
18	Boss 713.....	20	3 4 43.24	-0.052	-0.011	+0.032	-0.073	+0.002	42.44	-60.76	
19	Boss 740.....	20	3 13 1.81	-0.052	+0.002	+0.032	-0.072	0.000	0.93	-60.84	
20	Boss 774.....	20	3 20 8.74	-0.054	+0.011	+0.027	-0.064	+0.001	7.88	-60.82	
21	Boss 817.....	20	3 31 24.42	-0.056	+0.028	+0.034	-0.083	-0.007	23.70	-60.66	
22	ν Persei.....	20	3 40 22.92	-0.052	+0.034	+0.031	-0.070	-0.003	22.11	-60.77	
23	ζ Persei.....	20	3 49 45.43	-0.046	+0.019	+0.027	-0.054	+0.003	44.65	-60.76	
24	Boss 944.....	20	4 2 43.36	-0.047	+0.038	+0.026	-0.053	+0.008	42.57	-60.77	
25	Boss 970.....	20	4 10 4.20	-0.048	+0.034	+0.030	-0.063	-0.001	3.38	-60.79	
26	ϵ Ursæ Minoris s. p.	24	4 55 36.08	-0.061	-0.035	+0.375	+0.231	.....	35.63	.....
December 23, M.											
27	λ Aurigæ.....	20	5 14 8.06	-0.060	-0.219	+0.030	-0.078	+0.005	7.18	-60.84	
28	Boss 1311.....	20	5 22 59.25	-0.065	-0.242	+0.028	-0.079	-0.023	58.46	-60.72	
29	Boss 1457.....	20	5 48 57.94	-0.064	-0.096	+0.026	-0.071	-0.021	56.99	-60.88	
30	Boss 1565.....	20	6 10 56.62	-0.079	-0.057	+0.026	-0.090	-0.011	55.64	-60.90	
31	μ Geminorum.....	20	6 18 47.99	-0.079	-0.042	+0.025	-0.082	-0.013	47.15	-60.77	
December 26, M.											
32	α Ursæ Minoris.....	16	1 29 33.02	+0.074	-0.223	+1.299	+2.380	.....	44.26	.....
33	γ Andromedæ.....	20	1 59 39.59	+0.075	-0.157	+0.035	+0.101	+0.011	37.40	-62.34	
34	β Trianguli.....	20	2 5 28.11	+0.080	-0.118	+0.032	+0.097	-0.011	25.87	-62.36	
35	γ Trianguli.....	20	2 13 14.66	+0.084	-0.062	+0.031	+0.100	-0.007	12.45	-62.33	
36	Boss 555.....	20	2 23 24.79	+0.082	-0.096	+0.030	+0.095	-0.015	22.54	-62.36	
37	Boss 610.....	20	2 37 51.99	+0.092	-0.164	+0.034	+0.120	+0.003	49.72	-62.43	
38	41 Arietis.....	20	2 45 58.28	+0.096	-0.171	+0.029	+0.105	-0.040	55.95	-62.42	
39	Boss 672.....	16	2 55 2.49	+0.087	-0.179	+0.038	+0.126	+0.036	0.39	-62.30	
40	Boss 713.....	20	3 4 44.67	+0.074	-0.198	+0.036	+0.103	+0.027	42.44	-62.40	
41	Boss 774.....	20	3 20 10.03	+0.092	-0.260	+0.031	+0.109	-0.031	7.89	-62.25	
December 26, L.											
42	δ Ursæ Minoris s. p.	20	6 0 37.42	+0.062	-0.033	+0.913	-0.609	.....	35.77	.....
43	Boss 1565.....	16	6 10 58.03	+0.069	-0.029	+0.030	+0.078	-0.005	55.71	-62.42	
44	μ Geminorum.....	20	6 18 49.47	+0.076	-0.019	+0.028	+0.079	-0.006	47.19	-62.38	
45	51 Aurigæ.....	20	6 33 46.35	+0.079	-0.025	+0.034	+0.102	0.000	44.10	-62.39	
46	ϕ^5 Aurigæ.....	20	6 41 37.02	+0.078	-0.092	+0.036	+0.107	+0.010	34.76	-62.41	
47	θ Geminorum.....	20	6 48 11.61	+0.079	-0.134	+0.031	+0.095	-0.014	9.28	-62.44	
48	Boss 1840.....	20	7 6 44.30	+0.080	-0.096	+0.030	+0.092	-0.017	41.90	-62.50	
49	25 H. Camelopardalis.....	22	7 14 17.10	+0.076	-0.125	+0.201	+0.426	.....	15.55	.....
50	ρ Geminorum.....	20	7 24 39.20	+0.074	-0.127	+0.031	+0.087	-0.018	36.79	-62.51	
51	Boss 2001.....	20	7 34 37.60	+0.077	-0.097	+0.032	+0.094	-0.009	35.26	-62.46	
52	26 Lyncis.....	20	7 49 31.94	+0.068	-0.126	+0.039	+0.100	+0.029	29.68	-62.43	
53	χ Geminorum.....	20	7 59 18.49	+0.068	-0.136	+0.029	+0.076	-0.029	16.08	-62.49	
December 27, L.											
54	β Trianguli.....	20	2 5 28.88	-0.056	+0.004	+0.033	-0.068	0.000	25.86	-62.98	
55	γ Trianguli.....	20	2 13 15.40	-0.062	-0.018	+0.032	-0.074	-0.002	12.44	-62.92	
58	Boss 555.....	20	2 23 25.52	-0.052	-0.032	+0.032	-0.060	-0.005	22.54	-62.95	

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—				App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.			
			h m s	s	s	s	s	s	s	s	s
1	Boss 610.....	20	2 37 52.64	-0.039	-0.065	+0.035	-0.051	+0.001	49.72	-62.91	
2	41 Arietis.....	20	2 45 58.96	-0.041	-0.135	+0.030	-0.045	-0.032	55.95	-62.96	
3	47 H. Cephei.....	24	2 55 41.13	-0.050	-0.174	+0.143	-0.202	.....	38.79	.....
4	Boss 713.....	20	3 4 45.35	-0.051	-0.171	+0.038	-0.071	+0.023	42.45	-62.89	
6	Boss 740.....	20	3 13 3.91	-0.051	-0.203	+0.037	-0.070	+0.023	0.94	-62.96	
6	Boss 774.....	20	3 20 10.90	-0.053	-0.179	+0.032	-0.063	-0.021	7.89	-62.96	
7	Boss 817.....	20	3 31 26.49	-0.045	-0.137	+0.040	-0.066	+0.032	23.71	-62.79	
8	ν Persei.....	20	3 40 25.04	-0.048	-0.147	+0.037	-0.065	+0.012	22.10	-62.92	
9	ζ Persei.....	20	3 49 47.63	-0.054	-0.137	+0.032	-0.063	-0.020	44.65	-62.93	
10	Boss 944.....	20	4 2 45.60	-0.037	-0.116	+0.031	-0.042	-0.023	42.60	-62.97	
11	Boss 970.....	20	4 10 6.35	-0.031	-0.108	+0.035	-0.041	+0.003	3.41	-62.94	
12	Boss 1030.....	20	4 21 42.12	-0.047	-0.114	+0.032	-0.054	-0.018	39.13	-62.95	
13	Boss 1074.....	20	4 31 48.33	-0.051	-0.099	+0.036	-0.068	+0.005	45.37	-62.93	
14	Boss 1129.....	20	4 44 46.52	-0.050	-0.094	+0.032	-0.058	-0.015	43.53	-62.95	
15	ε Ursæ Minoris s. P.	24	4 55 38.96	-0.049	-0.106	+0.404	+0.186	.....	35.68	.....
16	Boss 1222.....	20	5 5 23.50	-0.049	-0.135	+0.040	-0.071	+0.027	20.50	-63.00	
December 27, M.											
17	λ Aurigæ.....	20	5 14 10.21	-0.059	-0.167	+0.035	-0.077	+0.004	7.22	-62.95	
18	Boss 1311.....	20	5 23 1.50	-0.058	-0.121	+0.033	-0.070	-0.012	58.53	-62.92	
19	Boss 1369.....	20	5 32 51.24	-0.052	-0.071	+0.030	-0.057	-0.017	48.24	-62.96	
20	ο Aurigæ.....	20	5 40 19.56	-0.052	-0.071	+0.042	-0.079	+0.021	16.51	-63.03	
21	Boss 1457.....	20	5 49 0.00	-0.052	-0.068	+0.030	-0.058	-0.015	57.06	-62.90	
22	δ Ursæ Minoris s. P.	22	6 0 38.34	-0.059	-0.074	+0.931	+0.580	.....	35.69	.....
23	μ Geminorum.....	20	6 18 50.28	-0.057	-0.087	+0.029	-0.059	-0.027	47.21	-63.01	
24	51 Aurigæ.....	20	6 33 47.18	-0.049	-0.067	+0.035	-0.063	+0.001	44.12	-63.03	
25	φ ⁵ Aurigæ.....	20	6 41 37.80	-0.056	-0.061	+0.037	-0.077	+0.007	34.78	-62.99	
26	θ Geminorum.....	20	6 48 12.27	-0.062	-0.061	+0.033	-0.075	-0.006	9.30	-62.92	
27	Boss 1840.....	20	7 6 44.94	-0.073	-0.030	+0.031	-0.084	-0.005	41.93	-62.95	
28	25 H. (amelopardalis....	22	7 14 18.99	-0.072	-0.042	+0.209	-0.403	.....	15.64	.....
29	ρ Geminorum.....	20	7 24 39.88	-0.056	-0.058	+0.032	-0.066	-0.008	36.82	-63.02	
30	Boss 2001.....	20	7 34 38.32	-0.053	-0.061	+0.033	-0.064	-0.005	35.29	-62.99	
31	26 Lynceis.....	20	7 49 32.76	-0.049	-0.093	+0.040	-0.072	+0.021	29.71	-63.04	
32	χ Geminorum.....	20	7 59 19.18	-0.048	-0.068	+0.031	-0.053	-0.014	16.11	-63.03	
December 29, L.											
33	Boss 555.....	20	2 22 26.52	-0.013	+0.145	+0.035	-0.015	+0.022	22.53	- 4.03	
34	Boss 610.....	20	2 36 53.67	-0.001	+0.106	+0.039	-0.001	-0.002	49.71	- 4.00	
35	41 Arietis.....	20	2 44 59.94	+0.006	+0.038	+0.034	+0.007	+0.009	55.94	- 4.05	
36	47 H. Cephei.....	24	2 54 42.73	+0.012	+0.036	+0.158	+0.048	.....	38.66	.....
37	Boss 713.....	20	3 3 46.44	+0.017	+0.023	+0.042	+0.024	-0.003	42.44	- 4.06	
38	Boss 740.....	20	3 12 4.90	+0.019	+0.030	+0.041	+0.026	-0.004	0.93	- 4.03	
39	Boss 774.....	20	3 19 11.87	+0.021	+0.061	+0.036	+0.025	+0.007	7.89	- 4.05	
40	Boss 817.....	20	3 30 27.58	+0.023	+0.081	+0.045	+0.034	-0.019	23.71	- 3.93	
41	ν Persei.....	20	3 39 26.04	+0.024	+0.057	+0.041	+0.032	-0.005	22.09	- 4.02	
42	ζ Persei.....	20	3 48 48.62	+0.030	+0.040	+0.035	+0.035	+0.006	44.64	- 4.06	
43	Boss 944.....	20	4 1 46.56	+0.023	+0.077	+0.034	+0.026	+0.015	42.61	- 4.03	
44	Boss 970.....	20	4 9 7.33	+0.028	+0.068	+0.039	+0.037	-0.002	3.42	- 3.98	
45	Boss 1030.....	20	4 20 43.12	+0.040	+0.057	+0.035	+0.046	+0.009	39.14	- 4.07	
46	Boss 1074.....	20	4 30 49.29	+0.040	+0.072	+0.040	+0.053	-0.004	45.38	- 4.00	
47	Boss 1129.....	20	4 43 47.55	+0.042	+0.054	+0.035	+0.049	+0.008	43.55	- 4.09	
48	ε Ursæ Minoris s. P.	24	4 54 39.59	+0.040	+0.046	+0.426	-0.152	.....	35.75	.....
49	Boss 1222.....	20	5 4 24.51	+0.037	+0.013	+0.044	+0.054	-0.003	20.52	- 4.09	
50	λ Aurigæ.....	20	5 13 11.21	+0.037	+0.005	+0.039	+0.048	0.000	7.23	- 4.07	
51	Boss 1311.....	20	5 22 2.52	+0.036	-0.022	+0.036	+0.043	-0.002	58.55	- 4.05	
December 29, M.											
52	Boss 1369.....	20	5 31 52.18	+0.031	-0.124	+0.034	+0.034	-0.029	48.27	- 3.95	
53	ο Aurigæ.....	20	5 39 20.52	+0.029	-0.135	+0.046	+0.044	+0.039	16.53	- 4.12	
54	Boss 1457.....	20	5 48 1.03	+0.023	-0.099	+0.034	+0.025	-0.022	57.09	- 3.98	
55	δ Ursæ Minoris s. P.	24	5 59 40.85	+0.020	-0.127	+0.981	-0.197	.....	35.58	.....
56	Boss 1565.....	20	6 9 59.72	+0.021	-0.111	+0.034	+0.024	-0.021	55.77	- 3.99	
57	μ Geminorum.....	20	6 17 51.25	+0.021	-0.060	+0.032	+0.022	-0.018	47.23	- 4.06	
58	51 Aurigæ.....	20	6 32 48.17	+0.030	-0.087	+0.039	+0.039	+0.001	44.15	- 4.10	
59	φ ⁵ Aurigæ.....	20	6 40 38.86	+0.039	-0.103	+0.041	+0.054	+0.012	34.82	- 4.15	

TABLE IX.—*Observations for Clock Corrections—Continued.*

WASHINGTON I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
1	θ Geminorum.....	20	^h 6 ^m 47 ^s 13.30	+0.038	-0.095	+0.036	+0.046	-0.010	9.33	-4.04
2	Boss 1840.....	20	7 5 46.05	+0.034	-0.074	+0.035	+0.039	-0.013	41.98	-4.13
3	25 H. Camelopardalis...	22	7 13 19.45	+0.032	-0.044	+0.232	+0.179	.....	15.81	.....
4	ρ Geminorum.....	20	7 23 40.90	+0.033	-0.065	+0.035	+0.039	-0.009	36.86	-4.10
5	Boss 2001.....	20	7 33 39.32	+0.034	-0.060	+0.037	+0.041	-0.005	35.34	-4.05
6	26 Lyncis.....	20	7 48 33.76	+0.034	-0.060	+0.045	+0.050	+0.014	29.77	-4.10
7	χ Geminorum.....	20	7 58 20.22	+0.038	-0.076	+0.034	+0.042	-0.016	16.16	-4.12
8	31 Lyncis.....	20	8 17 3.50	+0.036	-0.064	+0.041	+0.049	+0.007	59.44	-4.16
December 30, M.										
9	Boss 555.....	20	2 22 27.02	+0.003	+0.055	+0.035	+0.003	+0.008	22.52	-4.55
	Boss 610.....	20	2 36 54.23	-0.007	0.000	+0.039	-0.009	0.000	49.69	-4.57
10	41 Arietis.....	20	2 45 0.47	-0.010	-0.026	+0.034	-0.001	-0.006	55.93	-4.57
11	47 H. Cephei.....	22	2 54 43.28	-0.023	-0.047	+0.158	-0.093	.....	38.59	.....
12	Boss 713.....	20	3 3 46.98	-0.023	-0.095	+0.042	-0.032	+0.013	42.42	-4.58
13	Boss 740.....	20	3 12 5.52	-0.025	-0.105	+0.041	-0.034	+0.012	0.92	-4.62
14	Boss 774.....	20	3 19 12.41	-0.035	-0.017	+0.036	-0.042	-0.002	7.88	-4.52
15	Boss 817.....	20	3 30 28.24	-0.029	+0.001	+0.045	-0.043	0.000	23.70	-4.54
16	ζ Persei.....	20	3 48 49.22	-0.021	-0.027	+0.035	-0.024	-0.004	44.64	-4.59
17	Boss 944.....	20	4 1 47.19	-0.017	+0.076	+0.034	-0.019	+0.015	42.61	-4.61
18	Boss 970.....	20	4 9 7.96	-0.019	+0.002	+0.039	-0.025	0.000	3.42	-4.55
19	Boss 1030.....	20	4 20 43.72	-0.027	-0.055	+0.035	-0.031	-0.009	39.14	-4.58
20	Boss 1074.....	20	4 30 49.99	-0.023	-0.030	+0.040	-0.030	+0.002	45.38	-4.62
21	Boss 1129.....	20	4 43 48.14	-0.023	-0.056	+0.035	-0.027	-0.009	43.56	-4.58
22	ϵ Ursæ Minoris s. P.	20	4 54 40.12	-0.013	-0.065	+0.426	+0.049	.....	35.80	.....
23	Boss 1222.....	20	5 4 25.11	-0.005	-0.072	+0.044	-0.007	+0.015	20.52	-4.64
24	λ Aurigæ.....	20	5 13 11.84	-0.015	-0.105	+0.039	-0.020	+0.003	7.24	-4.62
25	Boss 1311.....	20	5 22 3.13	-0.013	-0.061	+0.036	-0.016	-0.006	58.56	-4.58
December 30, L.										
26	Boss 1369.....	20	5 31 52.88	-0.014	+0.054	+0.034	-0.015	+0.013	48.28	-4.63
27	α Aurigæ.....	20	5 39 21.04	-0.013	+0.065	+0.046	-0.020	-0.019	16.54	-4.51
28	Boss 1457.....	20	5 48 1.70	-0.007	+0.065	+0.034	-0.008	+0.014	57.10	-4.64
29	δ Ursæ Minoris s. P.	24	5 59 38.08	-0.005	+0.065	+0.981	+0.049	.....	35.57	.....
30	Boss 1565.....	20	6 10 0.41	+0.001	+0.054	+0.034	+0.001	+0.010	55.78	-4.67
31	μ Geminorum.....	20	6 17 51.90	-0.001	+0.073	+0.032	-0.001	+0.022	47.25	-4.70
32	51 Aurigæ.....	20	6 32 48.82	-0.008	+0.029	+0.039	-0.010	0.000	44.16	-4.69
33	ψ Aurigæ.....	20	6 40 39.46	-0.008	+0.001	+0.041	-0.011	0.000	34.84	-4.65
34	θ Geminorum.....	20	6 47 14.02	-0.012	+0.012	+0.036	-0.014	+0.001	9.35	-4.69
35	Boss 1840.....	20	7 5 46.68	-0.017	+0.027	+0.035	-0.019	+0.005	42.00	-4.70
36	25 H. Camelopardalis.....	28	7 13 20.15	-0.021	+0.015	+0.232	-0.118	.....	15.88	.....
37	ρ Geminorum.....	20	7 23 41.62	-0.027	-0.026	+0.035	-0.032	-0.004	36.88	-4.74
38	Boss 2001.....	20	7 33 40.05	-0.023	+0.004	+0.037	-0.028	0.000	35.36	-4.70
39	26 Lyncis.....	20	7 48 34.49	-0.015	-0.004	+0.045	-0.022	+0.001	29.79	-4.72
40	χ Geminorum.....	20	7 58 20.92	-0.018	-0.015	+0.034	-0.020	-0.003	16.18	-4.75
41	31 Lyncis.....	20	8 17 4.16	-0.020	+0.005	+0.041	-0.027	-0.001	59.47	-4.70
December 31, L.										
42	Boss 944.....	20	4 1 47.77	-0.066	+0.182	+0.034	-0.074	+0.036	42.60	-5.17
43	Boss 1030.....	20	4 20 44.28	-0.069	+0.126	+0.035	-0.080	+0.020	39.14	-5.11
44	Boss 1074.....	20	4 30 50.51	-0.062	+0.034	+0.040	-0.082	-0.002	45.38	-5.09
45	Boss 1129.....	20	4 43 48.72	-0.056	+0.039	+0.035	-0.065	+0.006	43.55	-5.15
46	ϵ Ursæ Minoris s. P.	26	4 54 40.63	-0.056	+0.055	+0.426	+0.212	.....	35.87	.....
47	Boss 1222.....	20	5 4 25.68	-0.048	-0.017	+0.044	-0.070	+0.003	20.52	-5.14
48	λ Aurigæ.....	20	5 13 12.42	-0.042	-0.057	+0.039	-0.055	+0.001	7.24	-5.17
49	Boss 1311.....	20	5 22 3.78	-0.044	-0.033	+0.036	-0.053	-0.003	58.56	-5.20

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON II, 1914.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
January 21, H.										
1	Groombridge 750.....	40	h m s 4 9 32.89	+0.017	-0.162	-0.196	+0.144	.....	18.31	.....
2	Boss 1030.....	14	4 20 55.12	-0.003	-0.159	+0.032	-0.003	-0.025	39.01	-16.11
3	Boss 1074.....	20	4 31 1.36	-0.014	-0.139	+0.036	-0.019	+0.006	45.24	-16.14
4	Boss 1129.....	14	4 43 59.65	-0.029	-0.144	+0.032	-0.034	-0.023	43.47	-16.16
5	ε Ursæ Minoris s. p.	40	4 54 54.63	-0.046	-0.181	+0.117	+0.174	.....	37.60	.....
6	Boss 1222.....	20	5 4 36.57	-0.055	-0.217	+0.039	-0.080	+0.043	20.44	-16.13
7	λ Aurigæ.....	20	5 13 23.44	-0.043	-0.206	+0.035	-0.056	+0.006	7.24	-16.18
8	Boss 1311.....	20	5 22 14.71	-0.040	-0.195	+0.033	-0.048	-0.020	58.55	-16.11
9	Boss 1369.....	18	5 32 4.52	-0.043	-0.149	+0.030	-0.047	-0.034	48.29	-16.18
10	o Aurigæ.....	20	5 39 32.69	-0.046	-0.162	+0.042	-0.070	+0.047	16.57	-16.14
11	Boss 1457.....	20	5 48 13.33	-0.053	-0.180	+0.031	-0.059	-0.040	57.15	-16.11
January 26, Mg.										
12	Groombridge 750.....	20	4 9 36.09	+0.129	+0.092	-0.196	+1.094	.....	17.40	.....
13	Boss 1030.....	20	4 20 57.46	+0.126	+0.179	+0.032	+0.146	+0.029	38.95	-18.72
14	Boss 1074.....	20	4 31 3.67	+0.112	+0.111	+0.036	+0.149	-0.006	45.17	-18.68
15	Boss 1129.....	20	4 44 1.86	+0.115	+0.024	+0.032	+0.133	+0.004	43.41	-18.62
16	ε Ursæ Minoris s. p.	20	4 54 57.17	+0.129	+0.008	+0.117	-0.489	.....	38.10	.....
17	Boss 1222.....	20	5 4 39.00	+0.137	-0.054	+0.039	+0.199	+0.011	20.38	-18.87
18	λ Aurigæ.....	20	5 13 25.71	+0.130	-0.066	+0.035	+0.170	+0.002	7.20	-18.72
19	Boss 1311.....	20	5 22 17.06	+0.133	+0.006	+0.033	+0.161	+0.001	58.51	-18.75
20	Boss 1369.....	20	5 32 6.79	+0.141	+0.065	+0.030	+0.155	+0.015	48.26	-18.73
21	Boss 1457.....	20	5 48 15.59	+0.136	+0.079	+0.031	+0.151	+0.017	57.13	-18.66
22	δ Ursæ Minoris s. p.	28	5 59 56.72	+0.128	+0.054	+0.270	-1.257	.....	37.86	.....
23	Boss 1565.....	20	6 10 14.42	+0.124	+0.052	+0.031	+0.141	+0.010	55.86	-18.74
24	51 Aurigæ.....	20	6 33 3.00	+0.129	+0.071	+0.035	+0.168	-0.001	44.36	-18.84
25	q ² Aurigæ.....	20	6 40 53.60	+0.129	+0.030	+0.037	+0.178	-0.003	35.06	-18.75
January 26, H.										
26	ρ Geminorum.....	20	7 23 55.73	+0.144	+0.148	+0.032	+0.168	+0.021	37.22	-18.73
January 27, H.										
27	Boss 1030.....	20	4 20 57.86	+0.147	-0.050	+0.032	+0.171	-0.008	38.94	-19.12
28	Boss 1074.....	20	4 31 4.12	+0.150	-0.049	+0.036	+0.200	+0.002	45.16	-19.20
29	ε Ursæ Minoris s. p.	32	4 54 58.72	+0.161	-0.169	+0.117	-0.610	.....	38.24	.....
30	Boss 1222.....	20	5 4 39.38	+0.184	-0.180	+0.039	+0.267	+0.036	20.36	-19.36
31	Boss 1311.....	20	5 22 17.57	+0.153	-0.103	+0.033	+0.185	-0.010	58.50	-19.28
32	Boss 1369.....	20	5 32 7.31	+0.171	-0.041	+0.030	+0.188	-0.009	48.27	-19.25
33	o Aurigæ.....	20	5 39 35.57	+0.173	-0.071	+0.042	+0.263	+0.021	16.53	-19.37
34	Boss 1457.....	20	5 48 16.03	+0.159	-0.091	+0.031	+0.176	-0.020	57.12	-19.10
35	δ Ursæ Minoris s. p.	28	5 59 58.58	+0.174	-0.113	+0.270	-1.709	.....	38.06	.....
36	μ Geminorum.....	18	6 18 6.33	+0.178	-0.100	+0.029	+0.185	-0.031	47.37	-19.14
37	51 Aurigæ.....	20	6 33 3.44	+0.172	-0.076	+0.035	+0.224	+0.001	44.36	-19.34
38	θ Geminorum.....	20	6 47 28.56	+0.158	-0.086	+0.033	+0.190	-0.009	9.58	-19.19
39	51 H. Cephei.....	36	7 1 26.50	+0.167	-0.024	-0.326	+2.265	.....	10.59	.....
40	Boss 1897.....	20	7 15 26.01	+0.177	-0.030	+0.038	+0.251	+0.005	6.89	-19.41
January 27, Mg.										
41	ρ Geminorum.....	20	7 23 56.23	+0.176	+0.014	+0.032	+0.206	+0.002	37.23	-19.24
42	Boss 2001.....	20	7 33 54.68	+0.176	+0.079	+0.033	+0.215	+0.007	35.72	-19.22
43	26 Lyncis.....	20	7 48 49.22	+0.187	-0.005	+0.040	+0.275	+0.001	30.28	-19.26
44	χ Geminorum.....	20	7 58 35.68	+0.187	-0.102	+0.031	+0.208	-0.021	16.61	-19.29
45	31 Lyncis.....	20	8 17 19.04	+0.184	-0.113	+0.037	+0.252	+0.012	0.03	-19.31
46	Groombridge 1450.....	20	8 27 41.50	+0.184	-0.076	+0.035	+0.236	-0.001	22.41	-19.36
47	Boss 2306.....	20	8 35 26.81	+0.184	-0.097	+0.039	+0.263	+0.017	7.80	-19.33
48	76 Draconis s. p.	36	8 49 0.12	+0.183	-0.113	+0.118	+0.699	.....	39.70	.....
49	Boss 2426.....	20	8 58 4.09	+0.177	-0.001	+0.030	+0.189	0.000	45.00	-19.31
50	Boss 2465.....	20	9 8 32.95	+0.174	+0.049	+0.037	+0.240	-0.005	13.94	-19.28
51	40 Lyncis.....	20	9 16 10.80	+0.176	+0.072	+0.033	+0.213	+0.006	51.73	-19.32
52	1 H. Draconis.....	40	9 25 27.12	+0.182	-0.052	-0.111	+0.926	.....	8.89	.....
53	Boss 2601.....	20	9 37 2.69	+0.189	-0.120	+0.035	+0.248	+0.004	43.60	-19.38
54	μ Leonis.....	20	9 48 13.95	+0.199	-0.174	+0.030	+0.217	-0.042	54.76	-19.39
55	Boss 2681.....	20	9 56 24.94	+0.194	-0.035	+0.032	+0.229	-0.005	5.78	-19.42

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON II, 1914—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
January 28, Mg.										
			h m s	s	s	s	s	s	s	s
1	Boss 1030.....	20	4 20 58.42	+0.157	0.000	+0.025	+0.182	0.000	38.93	-19.70
2	Boss 1074.....	20	4 31 4.68	+0.143	+0.063	+0.028	+0.190	-0.003	45.14	-19.76
3	Boss 1129.....	20	4 44 2.85	+0.147	+0.088	+0.025	+0.171	+0.014	43.39	-19.67
4	ε Ursæ Minoris s. p.	32	4 54 58.40	+0.159	+0.058	+0.117	-0.603	.....	38.37	.....
5	λ Aurigæ.....	20	5 13 26.69	+0.176	-0.166	+0.028	+0.231	+0.005	7.18	-19.77
6	Boss 1311.....	20	5 22 18.00	+0.179	-0.172	+0.025	+0.217	-0.017	58.49	-19.73
7	o Aurigæ.....	20	5 39 35.98	+0.167	+0.007	+0.033	+0.254	-0.002	16.52	-19.74
8	Boss 1457.....	20	5 48 16.60	+0.164	+0.076	+0.024	+0.182	+0.017	57.12	-19.70
9	Boss 1565.....	20	6 10 15.37	+0.165	+0.009	+0.024	+0.188	+0.002	55.86	-19.72
10	μ Geminorum.....	20	6 18 6.88	+0.168	+0.009	+0.023	+0.175	+0.003	47.36	-19.72
11	51 Aurigæ.....	20	6 33 3.96	+0.172	-0.034	+0.027	+0.224	0.000	44.36	-19.85
12	φ ² Aurigæ.....	20	6 40 54.52	+0.144	-0.049	+0.029	+0.199	+0.005	35.06	-19.69
13	θ Geminorum.....	20	6 47 29.04	+0.141	+0.037	+0.025	+0.169	+0.004	9.59	-19.65
14	51 H. Cephei.....	28	7 1 28.22	+0.150	+0.003	-0.326	+2.035	.....	10.46	.....
January 28, H.										
15	Boss 1897.....	20	7 15 26.53	+0.137	-0.060	+0.030	+0.195	+0.010	6.90	-19.87
16	ρ Geminorum.....	20	7 23 56.87	+0.131	+0.018	+0.025	+0.153	+0.003	37.23	-19.82
17	26 Lyncis.....	20	7 48 49.80	+0.124	-0.019	+0.031	+0.182	+0.004	30.31	-19.71
18	γ Geminorum.....	20	7 58 36.22	+0.142	-0.038	+0.024	+0.158	-0.008	16.62	-19.77
19	31 Lyncis.....	20	8 17 19.49	+0.152	-0.038	+0.029	+0.208	+0.004	0.05	-19.68
20	Groombridge 1450....	20	8 27 41.93	+0.160	-0.052	+0.027	+0.205	-0.001	22.42	-19.74
21	Boss 2306.....	14	8 35 27.38	+0.161	-0.050	+0.030	+0.230	+0.009	7.81	-19.84
22	76 Draconis s. p.	28	8 49 0.30	+0.149	-0.088	+0.118	-0.569	.....	39.70	.....
23	Boss 2426.....	20	8 58 4.57	+0.154	-0.095	+0.023	+0.165	-0.026	45.01	-19.72
24	Boss 2465.....	18	9 8 33.50	+0.151	-0.097	+0.029	+0.208	+0.011	13.96	-19.79
25	40 Lyncis.....	14	9 16 11.38	+0.164	-0.094	+0.026	+0.198	-0.008	51.74	-19.86
26	1 H. Draconis.....	20	9 25 27.47	+0.169	-0.094	-0.111	+0.860	.....	8.95	.....
27	Boss 2601.....	16	9 37 3.18	+0.139	-0.099	+0.028	+0.182	+0.003	43.62	-19.77
28	μ Leonis.....	20	9 48 14.36	+0.134	-0.058	+0.024	+0.146	-0.014	54.78	-19.74
29	Boss 2681.....	20	9 56 25.40	+0.143	-0.057	+0.025	+0.169	-0.008	5.80	-19.79
30	λ Ursæ Majoris.....	20	10 12 17.32	+0.139	-0.058	+0.029	+0.190	+0.006	57.73	-19.81
31	30 H. Camelopardalis...	20	10 21 15.80	+0.138	-0.060	-0.131	+0.813	.....	57.28	.....
January 29, H.										
32	Groombridge 750.....	40	4 9 36.55	-0.049	-0.178	-0.197	-0.416	.....	16.67	.....
33	Boss 1074.....	20	4 31 5.37	-0.064	-0.167	+0.028	-0.085	+0.008	45.13	-20.19
34	Boss 1129.....	20	4 44 3.67	-0.072	-0.137	+0.025	-0.084	-0.022	43.38	-20.21
35	ε Ursæ Minoris s. p.	32	4 54 58.53	-0.061	-0.112	+0.117	+0.232	.....	38.66	.....
36	Boss 1311.....	20	5 22 18.68	-0.079	-0.177	+0.025	-0.096	-0.018	58.48	-20.11
37	Boss 1369.....	20	5 32 8.41	-0.087	-0.025	+0.024	-0.096	-0.006	48.24	-20.09
38	o Aurigæ.....	16	5 39 36.72	-0.083	+0.010	+0.033	-0.126	-0.003	16.51	-20.11
39	δ Ursæ Minoris s. p.	20	5 59 56.59	-0.081	-0.026	+0.270	+0.795	.....	38.52	.....
40	μ Geminorum.....	20	6 18 7.57	-0.105	-0.014	+0.023	-0.109	-0.004	47.36	-20.12
41	51 Aurigæ.....	20	6 33 4.65	-0.114	-0.054	+0.027	-0.148	+0.001	44.36	-20.17
42	φ ² Aurigæ.....	20	6 40 55.37	-0.094	-0.088	+0.029	-0.130	+0.010	35.06	-20.22
43	θ Geminorum.....	20	6 47 29.82	-0.077	-0.049	+0.025	-0.092	-0.005	9.59	-20.16
44	51 H. Cephei.....	28	7 1 31.98	-0.074	-0.036	-0.326	-1.005	.....	10.32	.....
January 29, Mg.										
45	Boss 1897.....	16	7 15 27.19	-0.095	-0.016	+0.030	-0.135	+0.003	6.90	-20.19
46	ρ Geminorum.....	20	7 23 57.46	-0.114	+0.029	+0.025	-0.133	+0.004	37.24	-20.12
47	Boss 2001.....	18	7 33 56.03	-0.105	+0.018	+0.026	-0.128	+0.002	35.73	-20.20
48	26 Lyncis.....	20	7 48 50.55	-0.083	-0.049	+0.031	-0.122	+0.011	30.30	-20.17
49	γ Geminorum.....	20	7 58 36.86	-0.072	-0.055	+0.024	-0.080	-0.012	16.63	-20.16
50	31 Lyncis.....	20	8 17 20.24	-0.061	-0.108	+0.029	-0.084	+0.012	0.06	-20.14
51	Groombridge 1450....	12	8 27 42.76	-0.048	-0.159	+0.027	-0.061	-0.002	22.44	-20.28
52	76 Draconis s. p.	32	8 49 0.15	-0.072	-0.111	+0.118	+0.275	.....	39.68	.....
53	Boss 2426.....	20	8 58 5.36	-0.067	-0.067	+0.023	-0.072	-0.018	45.03	-20.26
54	Boss 2465.....	18	9 8 34.28	-0.053	+0.010	+0.029	-0.073	-0.001	13.98	-20.26
55	40 Lyncis.....	20	9 16 12.02	-0.044	+0.029	+0.026	-0.053	+0.003	51.76	-20.24
56	1 H. Draconis.....	28	9 25 29.69	-0.060	-0.044	-0.111	-0.305	.....	9.01	.....
57	Boss 2601.....	20	9 37 3.99	-0.074	-0.180	+0.028	-0.097	+0.005	43.64	-20.29
58	μ Leonis.....	20	9 48 15.15	-0.059	-0.180	+0.024	-0.064	-0.044	54.80	-20.27
59	Boss 2681.....	20	9 56 26.12	-0.058	-0.074	+0.025	-0.068	-0.010	5.82	-20.25
60	λ Ursæ Majoris.....	20	10 12 18.14	-0.049	-0.067	+0.029	-0.067	+0.007	57.75	-20.36
61	30 H. Camelopardalis...	36	10 21 17.32	-0.041	-0.032	-0.131	-0.241	.....	57.89	.....

TABLE IX.—*Observations for Clock Corrections*—Continued.

WASHINGTON II, 1914—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
January 31, H.										
1	Boss 1074.....	20	h m s 4 31 5.96	+0.058	-0.106	+0.028	+0.077	+0.008	45.10	-20.97
2	ε Ursæ Minoris s. p.	28	4 54 59.20	+0.021	+0.018	+0.117	-0.080	.....	38.80	.....
3	Boss 1222.....	20	5 4 41.33	+0.034	+0.032	+0.031	+0.049	-0.006	20.31	-21.09
4	λ Aurigæ.....	20	5 13 28.24	-0.101	-0.016	+0.028	-0.132	0.000	7.15	-20.99
5	Boss 1369.....	20	5 32 9.41	-0.082	-0.264	+0.024	-0.090	-0.061	48.23	-21.05
6	o Aurigæ.....	20	5 39 37.55	-0.082	-0.261	+0.033	-0.125	+0.047	16.48	-21.03
7	Boss 1457.....	20	5 48 18.26	-0.064	-0.216	+0.024	-0.071	-0.048	57.10	-21.06
8	δ Ursæ Minoris s. p.	28	6 0 0.36	-0.066	-0.178	+0.270	+0.648	.....	39.02	.....
9	Boss 1565.....	20	6 10 17.02	-0.074	-0.176	+0.024	-0.084	-0.033	55.85	-21.08
10	μ Geminorum.....	20	6 18 8.59	-0.078	-0.162	+0.023	-0.081	-0.050	47.35	-21.13
11	51 Aurigæ.....	20	6 33 5.58	-0.066	-0.201	+0.027	-0.086	+0.002	44.35	-21.17
12	φ ^s Aurigæ.....	20	6 40 56.33	-0.069	-0.219	+0.029	-0.095	+0.024	35.05	-21.24
13	θ Geminorum.....	20	6 47 30.74	-0.072	-0.178	+0.025	-0.086	-0.018	9.59	-21.07
14	51 H. Cephei.....	32	7 1 30.32	-0.121	-0.176	-0.326	-1.643	.....	9.97	.....
15	Boss 1897.....	14	7 15 28.09	-0.116	-0.176	+0.030	-0.165	+0.028	6.91	-21.07
16	ρ Geminorum.....	20	7 23 58.58	-0.088	-0.028	+0.025	-0.103	-0.004	37.24	-21.26
January 31, Mg.										
17	Boss 2001.....	20	7 33 56.93	-0.054	+0.079	+0.026	-0.066	+0.007	35.74	-21.16
18	26 Lyncis.....	20	7 48 51.52	-0.057	+0.017	+0.031	-0.084	-0.004	30.31	-21.15
19	31 Lyncis.....	20	8 17 21.33	-0.060	+0.018	+0.029	-0.082	-0.002	0.08	-21.19
20	Groombridge 1450....	20	8 27 43.71	-0.067	+0.072	+0.027	-0.086	+0.001	22.46	-21.19
21	Boss 2306.....	20	8 35 29.07	-0.049	+0.075	+0.030	-0.070	-0.014	7.86	-21.16
22	76 Draconis s. p.	28	8 49 0.49	-0.051	+0.018	+0.118	+0.195	.....	39.68	.....
23	Boss 2465.....	20	9 8 35.30	-0.069	-0.031	+0.029	-0.095	+0.003	14.02	-21.22
24	40 Lyncis.....	20	9 16 13.04	-0.078	-0.046	+0.026	-0.094	-0.004	51.79	-21.18
25	Boss 2550.....	20	9 27 12.50	-0.085	-0.037	+0.023	-0.089	-0.011	51.24	-21.18
26	Boss 2601.....	20	9 37 5.04	-0.093	-0.062	+0.028	-0.122	+0.002	43.68	-21.26
27	μ Leonis.....	20	9 48 16.12	-0.092	-0.066	+0.024	-0.100	-0.016	54.84	-21.19
28	λ Ursæ Majoris.....	20	10 12 19.10	-0.087	-0.048	+0.029	-0.119	+0.005	57.80	-21.22
29	30 H. Camelopardalis....	32	10 21 19.01	-0.092	-0.076	-0.131	-0.542	.....	57.57	.....
February 2, H.										
30	Boss 1030.....	20	4 21 0.90	-0.099	-0.017	+0.025	-0.115	-0.003	38.86	-21.95
31	Boss 1074.....	20	4 31 7.02	-0.122	-0.089	+0.028	-0.162	+0.004	45.07	-21.82
32	Boss 1129.....	20	4 44 5.42	-0.124	-0.092	+0.025	-0.144	-0.015	43.34	-21.95
33	ε Ursæ Minoris s. p.	32	4 55 1.42	-0.108	-0.097	+0.117	+0.409	.....	39.08	.....
34	Boss 1222.....	20	5 4 42.46	-0.103	-0.096	+0.031	-0.149	+0.019	20.28	-22.08
35	λ Aurigæ.....	20	5 13 29.33	-0.135	-0.087	+0.028	-0.177	+0.003	7.12	-22.06
36	Boss 1311.....	20	5 22 20.65	-0.149	-0.087	+0.025	-0.180	-0.009	58.44	-22.05
37	Boss 1369.....	20	5 32 10.31	-0.123	-0.057	+0.024	-0.135	-0.013	48.21	-21.98
38	o Aurigæ.....	20	5 39 38.56	-0.119	-0.073	+0.033	-0.181	+0.021	16.46	-21.97
39	Boss 1457.....	20	5 48 19.18	-0.148	-0.076	+0.024	-0.164	-0.017	57.09	-21.93
40	δ Ursæ Minoris s. p.	36	5 59 59.75	-0.172	-0.064	+0.270	+1.689	.....	39.50	.....
41	Boss 1565.....	20	6 10 18.03	-0.152	-0.043	+0.024	-0.173	-0.008	55.84	-22.03
42	51 Aurigæ.....	20	6 33 6.68	-0.154	-0.044	+0.027	-0.200	0.000	44.34	-22.17
43	φ ^s Aurigæ.....	20	6 40 57.21	-0.150	-0.057	+0.029	-0.207	+0.006	35.04	-22.00
44	θ Geminorum.....	20	6 47 31.73	-0.160	-0.066	+0.025	-0.192	-0.007	9.58	-21.98
45	51 H. Cephei.....	32	7 1 32.02	-0.151	-0.066	-0.326	-2.054	.....	9.61	.....
46	Boss 1897.....	20	7 15 29.04	-0.147	-0.067	+0.030	-0.209	+0.011	6.91	-21.96
February 2, Mg.										
47	ρ Geminorum.....	20	7 23 59.41	-0.142	-0.056	+0.025	-0.166	-0.008	37.24	-22.02
48	Boss 2001.....	20	7 33 57.90	-0.142	-0.011	+0.026	-0.173	-0.001	35.74	-22.01
49	26 Lyncis.....	20	7 48 52.48	-0.150	+0.014	+0.031	-0.221	-0.003	30.32	-21.97
50	γ Geminorum.....	20	7 58 38.89	-0.155	+0.020	+0.024	-0.172	+0.004	16.65	-22.10
51	31 Lyncis.....	20	8 17 22.28	-0.164	+0.022	+0.029	-0.225	-0.002	0.09	-21.99
52	Boss 2306.....	20	8 35 30.13	-0.174	+0.037	+0.030	-0.249	-0.007	7.88	-22.02
53	Boss 2368.....	20	8 46 36.04	-0.162	+0.098	+0.029	-0.225	-0.012	13.89	-21.94
54	Boss 2426.....	20	8 58 7.23	-0.159	+0.110	+0.023	-0.170	+0.030	45.08	-22.03
55	Boss 2465.....	20	9 8 36.26	-0.144	+0.074	+0.029	-0.199	-0.008	14.05	-22.03
56	40 Lyncis.....	20	9 16 14.02	-0.098	+0.197	+0.026	-0.119	+0.018	51.82	-22.12
57	1 H. Draconis.....	24	9 25 31.84	-0.068	+0.099	-0.111	-0.346	.....	9.16	.....
58	Boss 2601.....	20	9 37 5.91	-0.049	+0.106	+0.028	-0.064	-0.003	43.71	-22.16
59	μ Leonis.....	20	9 48 17.00	-0.051	+0.117	+0.024	-0.056	+0.028	54.87	-22.13

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON II, 1914—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
			h m s	s	s	s	s	s	s	s
1	Boss 2681.....	20	9 56 28.05	-0.069	+0.119	+0.025	-0.081	+0.017	5.91	-22.10
2	λ Ursæ Majoris.....	20	10 12 19.97	-0.060	+0.216	+0.029	-0.082	-0.024	57.84	-22.05
3	30 H. Camelopardalis.....	36	10 21 21.71	-0.059	+0.245	-0.131	-0.348	.....	57.72	.....
4	Boss 2829.....	20	10 34 17.62	-0.063	+0.200	+0.025	-0.074	+0.026	55.43	-22.17
February 3, Mg.										
5	Boss 1074.....	20	4 31 7.48	-0.033	-0.013	+0.028	-0.044	+0.001	45.06	-22.40
6	Boss 1129.....	16	4 44 5.79	-0.049	-0.019	+0.025	-0.057	-0.003	43.33	-22.42
7	ε Ursæ Minoris s. P.	32	4 55 1.84	-0.051	-0.006	+0.117	+0.193	.....	39.20	.....
8	Boss 1222.....	20	5 4 42.78	-0.053	-0.093	+0.031	-0.077	+0.019	20.27	-22.48
9	λ Aurigæ.....	20	5 13 29.64	-0.046	-0.144	+0.028	-0.060	+0.004	7.10	-22.51
10	Boss 1311.....	20	5 22 20.90	-0.039	-0.064	+0.025	-0.047	-0.006	58.43	-22.44
11	o Aurigæ.....	20	5 39 38.86	-0.030	-0.030	+0.033	-0.046	+0.009	16.44	-22.42
12	Boss 1457.....	20	5 48 19.51	-0.029	+0.003	+0.024	-0.032	+0.001	57.08	-22.42
13	δ Ursæ Minoris s. P.	20	5 59 59.24	-0.039	+0.137	+0.270	+0.383	.....	39.72	.....
14	μ Geminorum.....	20	6 18 9.84	-0.031	+0.102	+0.023	-0.032	+0.032	47.34	-22.52
15	ψ ^s Aurigæ.....	20	6 40 57.55	-0.026	+0.105	+0.029	-0.036	-0.012	35.04	-22.51
16	θ Geminorum.....	20	6 47 32.01	-0.038	+0.167	+0.025	-0.046	+0.017	9.57	-22.44
17	51 H. Cephei.....	28	7 1 34.26	-0.047	+0.116	-0.326	-0.639	.....	9.45	.....
18	Boss 1897.....	20	7 15 29.38	-0.046	+0.056	+0.030	-0.065	-0.009	6.91	-22.43
February 3, H.										
19	ρ Geminorum.....	20	7 23 59.66	-0.044	+0.051	+0.025	-0.051	+0.007	37.24	-22.40
20	Boss 2001.....	20	7 33 58.29	-0.039	+0.046	+0.026	-0.048	+0.004	35.75	-22.52
21	26 Lynxis.....	20	7 48 52.85	-0.041	+0.011	+0.031	-0.060	-0.003	30.32	-22.50
22	γ Geminorum.....	20	7 58 39.20	-0.041	+0.020	+0.024	-0.046	+0.004	16.66	-22.52
23	31 Lynxis.....	20	8 17 22.58	-0.049	-0.003	+0.029	-0.067	0.000	0.09	-22.45
24	Groombridge 1450.....	20	8 27 45.05	-0.044	-0.011	+0.027	-0.056	0.000	22.48	-22.54
25	76 Draconis s. P.	32	8 49 2.55	-0.014	-0.086	+0.118	+0.053	.....	39.70	.....
26	Boss 2465.....	20	9 8 36.64	-0.019	-0.142	+0.029	-0.026	+0.016	14.06	-22.60
27	40 Lynxis.....	20	9 16 14.42	-0.021	-0.128	+0.026	-0.025	-0.012	51.83	-22.58
28	Boss 2550.....	20	9 27 13.89	-0.006	-0.064	+0.023	-0.006	-0.019	51.28	-22.61
29	λ Ursæ Majoris.....	20	10 12 20.39	-0.027	-0.008	+0.029	-0.037	-0.001	57.86	-22.52
30	30 H. Camelopardalis.....	32	10 21 20.47	-0.035	-0.042	-0.131	-0.206	.....	57.79	.....
February 4, H.										
31	Boss 1129.....	20	4 44 6.11	+0.012	+0.100	+0.025	+0.014	+0.016	43.32	-22.85
32	ε Ursæ Minoris s. P.	28	4 55 1.91	+0.002	+0.098	+0.117	-0.007	.....	39.33	.....
33	Boss 1222.....	20	5 4 43.10	-0.019	+0.103	+0.031	-0.028	-0.021	20.26	-22.82
34	Boss 1311.....	20	5 22 21.20	-0.033	-0.020	+0.025	-0.040	-0.002	58.42	-22.76
35	Boss 1369.....	20	5 32 11.08	-0.007	+0.071	+0.024	-0.008	+0.016	48.20	-22.91
36	o Aurigæ.....	20	5 39 39.38	-0.001	+0.056	+0.033	-0.002	-0.016	16.43	-22.97
37	Boss 1457.....	20	5 48 19.85	-0.008	+0.070	+0.024	-0.009	+0.015	57.07	-22.81
38	μ Geminorum.....	20	6 18 10.25	-0.026	+0.101	+0.023	-0.027	+0.031	47.33	-22.95
39	51 Aurigæ.....	20	6 33 7.37	-0.031	+0.091	+0.027	-0.040	-0.001	44.33	-23.03
40	ψ ^s Aurigæ.....	20	6 40 58.08	-0.026	+0.090	+0.029	-0.036	-0.010	35.03	-23.03
41	θ Geminorum.....	20	6 47 32.40	-0.028	+0.135	+0.025	-0.034	+0.014	9.57	-22.83
42	51 H. Cephei.....	32	7 1 34.62	-0.033	+0.131	-0.326	-0.449	.....	9.31	.....
February 7, Mg.										
43	ε Ursæ Minoris s. P.	28	4 55 4.25	+0.103	+0.040	+0.117	-0.390	.....	39.70	.....
44	Boss 1222.....	20	5 4 44.20	+0.077	-0.066	+0.031	+0.112	+0.013	20.22	-24.14
45	λ Aurigæ.....	20	5 13 31.12	+0.068	-0.047	+0.029	+0.089	+0.001	7.05	-24.19
46	Boss 1311.....	20	5 22 22.47	+0.079	+0.001	+0.025	+0.096	0.000	58.40	-24.19
47	Boss 1369.....	20	5 32 12.24	+0.082	+0.045	+0.024	+0.090	+0.010	48.17	-24.19
48	o Aurigæ.....	20	5 39 40.47	+0.090	+0.025	+0.033	+0.137	-0.007	16.38	-24.25
49	Boss 1457.....	20	5 48 21.10	+0.096	+0.050	+0.024	+0.107	+0.011	57.05	-24.19
50	δ Ursæ Minoris s. P.	36	6 0 4.94	+0.076	+0.053	+0.270	-0.746	.....	40.52	.....
51	Boss 1565.....	20	6 10 19.94	+0.070	+0.049	+0.024	+0.080	+0.009	55.81	-24.24
52	μ Geminorum.....	20	6 18 11.39	+0.083	+0.081	+0.023	+0.086	+0.025	47.31	-24.21
53	51 Aurigæ.....	20	6 33 8.44	+0.079	+0.048	+0.027	+0.103	0.000	44.30	-24.27
54	ψ ^s Aurigæ.....	20	6 40 59.07	+0.077	+0.014	+0.029	+0.106	-0.002	35.01	-24.20
55	θ Geminorum.....	20	6 47 33.66	+0.075	+0.089	+0.025	+0.090	+0.009	9.56	-24.22
56	51 H. Cephei.....	24	7 1 34.62	+0.077	+0.093	-0.326	+1.047	.....	8.96	.....
57	Boss 1897.....	20	7 15 31.06	+0.077	+0.051	+0.030	+0.109	-0.008	6.91	-24.28

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON II, 1914—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
February 7, H.										
1	ρ Geminorum.....	20	h m s 7 24 1.34	+0.077	+0.064	+0.025	+0.090	+0.009	37.24	-24.22
2	Boss 2001.....	20	7 33 59.79	+0.072	+0.061	+0.026	+0.088	+0.005	35.75	-24.16
3	26 Lyncis.....	20	7 48 54.40	+0.058	-0.035	+0.031	+0.085	+0.008	30.33	-24.19
4	γ Geminorum.....	20	7 58 40.83	+0.066	-0.138	+0.024	+0.073	-0.029	16.67	-24.23
5	31 Lyncis.....	20	8 17 24.25	+0.058	-0.115	+0.029	+0.079	+0.013	0.12	-24.24
6	76 Draconis s. p.	36	8 49 4.71	+0.057	-0.094	+0.118	-0.218	.....	39.70	.....
7	Boss 2465.....	20	9 8 38.39	+0.039	-0.098	+0.029	+0.058	+0.011	14.12	-24.37
8	Boss 2601.....	20	9 37 8.13	+0.024	-0.070	+0.028	+0.031	+0.002	43.80	-24.39
9	μ Leonis.....	20	9 48 19.32	+0.037	+0.019	+0.024	+0.040	+0.005	54.94	-24.45
10	Boss 2681.....	20	9 56 30.33	+0.050	+0.079	+0.025	+0.059	+0.011	6.00	-24.43
11	λ Ursæ Majoris.....	20	10 12 22.23	+0.048	+0.052	+0.029	+0.066	-0.007	57.94	-24.38
12	30 H. Camelopardalis...	32	10 21 22.36	+0.025	+0.017	-0.131	+0.147	.....	58.16	.....
13	Boss 2829.....	20	10 34 19.90	+0.018	+0.023	+0.025	+0.021	+0.003	55.49	-24.46
14	46 Leonis Minoris.....	20	10 48 57.23	+0.032	+0.037	+0.026	+0.039	+0.003	32.90	-24.40
February 9, Mg.										
15	ϵ Ursæ Minoris s. p.	28	4 55 4.97	+0.087	+0.040	+0.117	-0.331	.....	39.96	.....
16	Boss 1222.....	20	5 4 45.20	+0.092	+0.026	+0.018	+0.133	-0.005	20.19	-25.16
17	λ Aurigæ.....	20	5 13 32.00	+0.084	+0.026	+0.016	+0.110	-0.001	7.02	-25.10
18	Boss 1369.....	20	5 32 13.18	+0.043	+0.011	+0.013	+0.047	+0.003	48.16	-25.08
19	α Aurigæ.....	20	5 39 41.42	+0.042	-0.014	+0.019	+0.064	+0.004	16.35	-25.16
20	Boss 1457.....	20	5 48 22.02	+0.041	-0.001	+0.014	+0.046	0.000	57.04	-25.04
21	δ Ursæ Minoris s. p.	32	6 0 5.21	+0.030	+0.015	+0.270	+0.295	.....	40.91	.....
22	Boss 1565.....	20	6 10 20.87	+0.036	+0.018	+0.014	+0.041	+0.003	55.80	-25.13
23	μ Geminorum.....	20	6 18 12.34	+0.041	+0.032	+0.013	+0.043	+0.010	47.30	-25.11
24	51 Aurigæ.....	20	6 33 9.33	+0.033	+0.003	+0.016	+0.043	0.000	44.29	-25.10
25	ψ Aurigæ.....	20	6 41 0.02	+0.026	+0.037	+0.017	+0.036	+0.004	35.00	-25.07
26	51 H. Cephei.....	24	7 1 35.62	+0.013	+0.132	-0.326	+0.177	.....	8.66	.....
27	Boss 1897.....	20	7 15 32.01	+0.007	+0.125	+0.017	+0.010	-0.020	6.91	-25.11
28	ρ Geminorum.....	20	7 24 2.28	+0.014	+0.113	+0.014	+0.016	+0.016	37.24	-25.09
29	Boss 2001.....	20	7 34 0.75	+0.015	+0.129	+0.015	+0.018	+0.012	35.76	-25.03
February 9, H.										
30	26 Lyncis.....	20	7 48 55.41	+0.004	+0.102	+0.018	+0.006	-0.023	30.33	-25.08
31	31 Lyncis.....	16	8 17 25.32	+0.004	+0.056	+0.017	+0.005	-0.006	0.13	-25.21
32	76 Draconis s. p.	36	8 49 4.00	+0.006	+0.025	+0.118	-0.023	.....	39.61	.....
33	Boss 2426.....	20	8 58 10.28	-0.006	+0.069	+0.013	-0.006	+0.019	45.16	-25.15
34	Boss 2465.....	20	9 8 39.27	-0.003	+0.070	+0.017	-0.004	-0.008	14.15	-25.12
35	40 Lyncis.....	20	9 16 17.10	0.000	+0.040	+0.015	0.000	+0.004	51.90	-25.22
36	Boss 2550.....	20	9 27 16.49	-0.002	+0.069	+0.013	-0.002	+0.020	51.38	-25.14
37	Boss 2601.....	20	9 37 9.04	+0.001	+0.031	+0.016	-0.001	-0.001	43.83	-25.23
38	Boss 2681.....	20	9 56 31.10	+0.017	+0.049	+0.014	+0.020	+0.007	6.03	-25.11
39	30 H. Camelopardalis...	36	10 21 24.08	+0.013	+0.038	-0.131	+0.077	.....	58.35	.....
40	Boss 2829.....	18	10 34 20.71	+0.020	+0.058	+0.014	+0.024	+0.008	55.62	-25.14
41	46 Leonis Minoris.....	20	10 48 58.00	+0.009	+0.089	+0.015	+0.011	+0.008	32.95	-25.08
42	Boss 2926.....	20	10 56 29.31	+0.003	+0.091	+0.016	+0.004	-0.002	4.28	-25.05
February 11, Mg.										
43	Boss 1222.....	20	5 4 45.96	+0.077	+0.093	+0.018	+0.112	-0.019	20.16	-25.91
44	Boss 1311.....	20	5 22 24.20	+0.007	+0.053	+0.015	+0.008	+0.005	58.36	-25.87
45	Boss 1369.....	20	5 32 13.96	+0.016	+0.155	+0.013	+0.018	+0.036	48.14	-25.89
46	δ Ursæ Minoris s. p.	32	6 0 5.20	+0.001	+0.125	+0.270	-0.010	.....	41.50	.....
47	Boss 1565.....	20	6 10 21.69	-0.009	+0.058	+0.014	-0.010	+0.011	55.78	-25.92
48	μ Geminorum.....	20	6 18 13.24	-0.016	+0.021	+0.013	-0.017	+0.007	47.28	-25.98
49	51 Aurigæ.....	20	6 33 10.20	-0.021	+0.007	+0.016	-0.027	0.000	44.27	-25.92
50	ψ Aurigæ.....	20	6 41 0.95	-0.020	-0.025	+0.017	-0.028	+0.003	34.98	-25.96
51	θ Geminorum.....	20	6 47 35.50	-0.020	+0.018	+0.015	-0.024	+0.002	9.53	-25.96
52	51 H. Cephei.....	34	7 1 35.68	-0.030	+0.064	-0.326	-0.407	.....	8.23	.....
53	Boss 1897.....	20	7 15 32.87	-0.031	+0.079	+0.017	-0.044	-0.013	6.90	-25.93
54	ρ Geminorum.....	20	7 24 3.18	-0.036	+0.143	+0.014	-0.042	+0.020	37.23	-25.94
55	Boss 2001.....	20	7 34 1.72	-0.046	+0.158	+0.015	-0.056	+0.014	35.76	-25.93
56	26 Lyncis.....	20	7 48 56.40	-0.056	+0.101	+0.018	-0.082	-0.023	30.32	-25.99
February 11, H.										
57	γ Geminorum.....	20	7 58 42.68	-0.064	+0.089	+0.014	-0.071	+0.019	16.67	-25.97
58	31 Lyncis.....	20	8 17 26.14	-0.068	+0.090	+0.017	-0.093	-0.010	0.13	-25.92
59	Groombridge 1450....	20	8 27 48.59	-0.059	+0.093	+0.015	-0.076	+0.001	22.52	-26.01

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON II, 1914—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
1	Boss 2306.....	20	h m s 8 35 34.04	-0.054	+0.108	+0.017	-0.077	-0.019	7.96	-26.00
2	76 Draconis s. P.	28	8 49 4.34	-0.046	+0.106	+0.118	+0.175	.....	39.69	.....
3	Boss 2426.....	20	8 58 11.18	-0.037	+0.117	+0.013	-0.040	+0.032	45.17	-26.01
4	Boss 2465.....	20	9 8 40.28	-0.047	+0.114	+0.017	-0.065	-0.012	14.16	-26.06
5	Boss 2550.....	20	9 27 17.39	-0.056	+0.140	+0.013	-0.059	+0.041	51.40	-25.99
6	Boss 2601.....	20	9 37 9.93	-0.051	+0.137	+0.016	-0.067	-0.004	43.86	-26.01
7	μ Leonis.....	20	9 48 21.04	-0.054	+0.101	+0.013	-0.059	+0.024	54.99	-26.03
8	Boss 2681.....	20	9 56 32.10	-0.051	+0.109	+0.014	-0.060	+0.015	6.06	-26.01
9	λ Ursæ Majoris.....	20	10 12 24.11	-0.058	+0.114	+0.017	-0.079	-0.013	58.05	-25.98
10	30 H. Camelopardalis...	28	10 21 25.58	-0.054	+0.110	-0.131	-0.318	.....	58.52	.....
11	Boss 2829.....	20	10 34 21.71	-0.046	+0.148	+0.014	-0.054	+0.019	55.64	-26.05
12	46 Leonis Minoris.....	20	10 48 59.10	-0.063	+0.183	+0.015	-0.076	+0.016	32.98	-26.08
13	Boss 2926.....	20	10 56 30.39	-0.063	+0.182	+0.016	-0.082	-0.004	4.33	-25.99
14	ψ Ursæ Majoris.....	18	11 5 19.11	-0.050	+0.141	+0.017	-0.071	-0.021	53.03	-26.00
February 17, Mg.										
15	Boss 1457.....	20	5 48 25.28	-0.010	+0.233	+0.014	-0.001	+0.051	56.94	-28.40
16	δ Ursæ Minoris s. P.	40	6 0 7.83	+0.008	+0.204	+0.270	-0.079	.....	43.32	.....
17	Boss 1565.....	20	6 10 24.11	+0.007	+0.204	+0.014	+0.010	+0.039	55.71	-28.46
18	μ Geminorum.....	20	6 18 15.58	+0.017	+0.248	+0.013	+0.018	+0.079	47.22	-28.47
19	51 Aurigæ.....	20	6 33 12.63	+0.056	+0.242	+0.016	+0.073	-0.002	44.20	-28.52
20	ψ ⁵ Aurigæ.....	20	6 41 3.35	+0.075	+0.209	+0.017	+0.104	-0.023	34.90	-28.55
21	θ Geminorum.....	20	6 47 37.83	+0.079	+0.226	+0.015	+0.095	+0.023	9.48	-28.48
22	51 H. Cephei.....	28	7 1 38.70	+0.106	+0.255	-0.326	+1.442	.....	6.63	.....
33	Boss 1897.....	20	7 15 35.15	+0.122	+0.238	+0.017	-0.173	-0.038	6.84	-28.46
24	ρ Geminorum.....	20	7 24 5.47	+0.126	+0.230	+0.014	+0.147	+0.032	37.19	-28.47
35	Boss 2001.....	20	7 34 4.00	+0.142	+0.281	+0.015	+0.173	+0.025	35.73	-28.48
26	χ Geminorum.....	20	7 58 45.01	+0.197	+0.044	+0.014	+0.219	+0.009	16.66	-28.59
February 17, H.										
27	31 Lyncis.....	20	8 17 28.85	-0.149	+0.059	+0.017	-0.204	-0.006	0.12	-28.54
28	Groombridge 1450.....	20	8 27 51.13	-0.145	+0.031	+0.015	-0.186	0.000	22.52	-28.44
29	Boss 2306.....	20	8 35 36.68	-0.116	+0.138	+0.017	-0.166	-0.025	7.96	-28.55
30	76 Draconis s. P.	28	8 49 6.82	-0.101	+0.096	+0.118	+0.386	.....	39.91	.....
31	Boss 2465.....	20	9 8 42.89	-0.104	+0.330	+0.017	-0.144	-0.036	14.19	-28.54
32	40 Lyncis.....	20	9 16 20.58	-0.094	+0.330	+0.015	-0.114	+0.030	51.95	-28.56
33	Boss 2550.....	20	9 27 19.92	-0.072	+0.325	+0.013	-0.076	+0.094	51.43	-28.52
34	Boss 2601.....	20	9 37 12.63	-0.059	+0.316	+0.016	-0.077	-0.009	43.91	-28.65
35	μ Leonis.....	20	9 48 23.58	-0.064	+0.287	+0.013	-0.070	+0.069	55.04	-28.55
36	Boss 2681.....	20	9 56 34.67	-0.040	+0.230	+0.014	-0.047	+0.032	6.12	-28.55
37	λ Ursæ Majoris.....	20	10 12 26.74	-0.010	+0.157	+0.017	-0.014	-0.017	58.08	-28.65
38	30 H. Camelopardalis...	32	10 21 28.74	-0.004	+0.105	-0.131	-0.024	.....	58.73	.....
39	Boss 2829.....	20	10 34 24.22	-0.009	+0.139	+0.014	-0.011	+0.018	55.73	-28.51
40	46 Leonis Minoris.....	20	10 49 1.58	+0.012	+0.175	+0.015	+0.015	+0.016	33.09	-28.54
41	Boss 2926.....	20	10 56 32.96	+0.020	+0.140	+0.016	+0.026	-0.003	4.44	-28.56
42	ψ Ursæ Majoris.....	20	11 5 21.69	+0.007	+0.104	+0.017	+0.010	-0.016	53.15	-28.55
43	ν Ursæ Majoris.....	20	11 14 21.35	+0.022	+0.139	+0.014	+0.026	+0.015	52.83	-28.58
44	39 H. Cephei s. P.	32	11 27 39.24	+0.033	+0.145	+0.290	-0.350	.....	14.60	.....
February 21, Mg.										
45	Boss 1457.....	20	5 48 26.75	+0.235	+0.512	+0.014	+0.261	+0.113	56.88	-30.26
46	δ Ursæ Minoris s. P.	36	6 0 11.02	+0.247	+0.478	+0.270	-2.425	.....	44.36	.....
47	Boss 1565.....	20	6 10 25.60	+0.234	+0.485	+0.014	+0.267	+0.092	55.66	-30.31
48	μ Geminorum.....	20	6 18 17.03	+0.229	+0.538	+0.013	+0.238	+0.167	47.17	-30.28
49	51 Aurigæ.....	20	6 33 14.38	+0.058*	+0.464	+0.016	+0.075	-0.005	44.15	-30.32
50	ψ ⁵ Aurigæ.....	20	6 41 5.10	+0.051	+0.333	+0.017	+0.070	-0.037	34.85	-30.30
51	θ Geminorum.....	20	6 47 39.61	+0.024	+0.310	+0.015	+0.029	+0.031	9.43	-30.26
52	51 H. Cephei.....	32	7 1 40.03	+0.024	+0.345	-0.326	+0.326	.....	5.76	.....
53	Boss 1897.....	20	7 15 37.00	+0.029	+0.366	+0.017	+0.041	-0.059	6.79	-30.21
54	ρ Geminorum.....	20	7 24 7.34	+0.034	+0.426	+0.014	+0.040	+0.060	37.16	-30.29
55	Boss 2001.....	20	7 34 5.86	+0.036	+0.499	+0.015	+0.044	+0.045	35.69	-30.27
56	26 Lyncis.....	20	7 49 0.60	+0.027	+0.491	+0.018	+0.040	-0.113	30.26	-30.28
57	χ Geminorum.....	20	7 58 46.84	+0.016	+0.466	+0.014	+0.018	+0.098	16.64	-30.33
58	31 Lyncis.....	20	8 17 30.40	+0.005	+0.467	+0.017	+0.007	-0.051	0.11	-30.26
59	Groombridge 1450.....	20	8 27 52.79	+0.001	+0.453	+0.015	+0.001	+0.005	22.51	-30.30

* Level adjusted.

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON II, 1914—Continued.

No.	Date, Observer, and Star.	No. of Con- tacts.	Mean of Con- tact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi- muth.	Contact.	Level.	Azi- muth.		
February 21, H.										
1	Boss 2306.....	20	h m s 8 35 38.27	+0.002	+0.448	+0.017	+0.003	-0.081	7.95	-30.26
2	76 Draconis s. p.	32	8 49 8.19	-0.004	+0.406	+0.118	+0.015	.....	40.04	.....
3	Boss 2426.....	20	8 58 15.34	-0.004	+0.415	+0.013	-0.004	+0.112	45.20	-30.26
4	Boss 2465.....	20	9 8 44.53	+0.001	+0.415	+0.017	+0.001	-0.046	14.20	-30.30
5	40 Lyncis.....	20	9 16 22.22	+0.011	+0.376	+0.015	+0.013	+0.034	51.96	-30.32
6	Boss 2550.....	20	9 27 21.58	+0.015	+0.413	+0.013	+0.016	+0.120	51.45	-30.28
7	Boss 2601.....	20	9 37 14.26	+0.013	+0.450	+0.016	+0.017	-0.014	43.93	-30.35
8	μ Leonis.....	20	9 48 25.23	+0.019	+0.426	+0.013	+0.021	+0.102	55.07	-30.30
9	Boss 2681.....	20	9 56 36.34	+0.022	+0.428	+0.014	+0.026	+0.060	6.15	-30.29
10	λ Urse Majoris.....	20	10 12 28.46	+0.016	+0.413	+0.017	+0.022	-0.045	58.12	-30.33
11	30 H. Camelopardalis...	32	10 21 31.00	+0.026	+0.412	-0.131	+0.153	.....	58.92	.....
12	Boss 2829.....	20	10 34 25.95	+0.024	+0.459	+0.014	+0.028	+0.060	55.78	-30.27
13	46 Leonis Minoris.....	20	10 49 3.36	+0.019	+0.459	+0.015	+0.023	+0.041	33.14	-30.30
14	ϕ Urse Majoris.....	20	11 5 23.51	+0.035	+0.455	+0.017	+0.049	-0.068	53.22	-30.29
15	ν Urse Majoris.....	20	11 14 23.10	+0.036	+0.456	+0.014	+0.043	+0.050	52.90	-30.31
16	39 H. Cephei s. p.	32	11 27 38.18	+0.056	+0.423	+0.290	-0.594	.....	13.98	.....
17	χ Urse Majoris.....	20	11 42 4.41	+0.069	+0.421	+0.018	+0.102	-0.101	34.07	-30.36
February 24, H.										
18	δ Urse Minoris s. p.	28	6 0 12.96	+0.230	+0.425	+0.270	-2.259	.....	45.33	.....
19	Boss 1565.....	20	6 10 26.81	+0.272	+0.425	+0.014	+0.310	+0.081	55.60	-31.61
20	μ Geminorum.....	20	6 18 18.27	+0.261	+0.459	+0.013	+0.271	+0.142	47.13	-31.57
21	51 Aurigæ.....	20	6 33 15.36	+0.286	+0.410	+0.016	+0.372	-0.004	44.10	-31.64
22	ϕ^5 Aurigæ.....	20	6 41 5.87	+0.350	+0.340	+0.017	+0.483	-0.037	34.80	-31.53
23	θ Geminorum.....	18	6 47 40.45	+0.368	+0.329	+0.015	+0.442	+0.033	9.39	-31.55
24	51 H. Cephei.....	32	7 1 36.80	+0.358	+0.376	-0.326	+4.869	.....	4.88	.....
25	Boss 1897.....	20	7 15 37.80	+0.368	+0.363	+0.017	+0.523	-0.058	6.73	-31.59
26	ρ Geminorum.....	20	7 24 8.29	+0.385	+0.357	+0.014	+0.450	+0.050	37.13	-31.67
27	Boss 2001.....	20	7 34 6.78	+0.387	+0.441	+0.015	+0.472	+0.040	35.65	-31.66
February 24, Mg.										
28	26 Lyncis.....	20	7 49 1.33	+0.393	+0.393	+0.018	+0.578	-0.090	30.22	-31.62
29	χ Geminorum.....	20	7 58 47.72	+0.393	+0.382	+0.014	+0.436	+0.080	16.62	-31.63
30	31 Lyncis.....	20	8 17 31.15	+0.388	+0.374	+0.017	+0.532	-0.041	0.09	-31.57
31	Groombridge 1450....	20	8 27 53.65	+0.388	+0.380	+0.015	+0.497	+0.004	22.50	-31.67
32	Boss 2306.....	20	8 35 39.05	+0.400	+0.402	+0.017	+0.572	-0.072	7.92	-31.65
33	76 Draconis s. p.	28	8 49 11.14	+0.413	+0.425	+0.118	-1.574	.....	40.14	.....
34	Boss 2426.....	20	8 58 16.26	+0.432	+0.471	+0.013	+0.462	+0.127	45.18	-31.68
35	Boss 2465.....	20	9 8 45.22	+0.436	+0.453	+0.017	+0.602	-0.050	14.18	-31.61
36	40 Lyncis.....	20	9 16 23.03	+0.448	+0.429	+0.015	+0.542	+0.039	51.96	-31.67
37	1 H. Draconis.....	32	9 25 40.91	+0.476	+0.425	-0.111	+2.423	.....	9.54	.....
February 26, H.										
38	μ Geminorum.....	20	6 18 19.30	0.000	+0.539	+0.010	0.000	+0.167	47.10	-32.38
39	51 Aurigæ.....	20	6 33 16.35	+0.014	+0.541	+0.012	+0.018	-0.005	44.07	-32.30
40	ϕ^5 Aurigæ.....	20	6 41 7.18	+0.016	+0.536	+0.012	+0.022	-0.059	34.77	-32.39
41	θ Geminorum.....	20	6 47 41.63	+0.024	+0.562	+0.011	+0.029	+0.056	9.36	-32.37
42	51 H. Cephei.....	32	7 1 44.29	+0.046	+0.663	-0.326	+0.626	.....	4.16	.....
43	Boss 1897.....	20	7 15 39.16	+0.049	+0.551	+0.013	+0.070	-0.088	6.70	-32.46
44	ρ Geminorum.....	20	7 24 9.41	+0.063	+0.432	+0.011	+0.074	+0.060	37.11	-32.44
45	26 Lyncis.....	20	7 49 2.59	+0.095	+0.491	+0.013	+0.140	-0.113	30.20	-32.43
46	χ Geminorum.....	20	7 58 48.86	+0.110	+0.491	+0.010	+0.121	+0.103	16.64	-32.45
47	31 Lyncis.....	20	8 17 32.34	+0.122	+0.488	+0.012	+0.167	-0.054	0.07	-32.39
48	Boss 2306.....	20	8 35 40.19	+0.129	+0.647	+0.013	+0.184	-0.116	7.90	-32.38
49	76 Draconis s. p.	32	8 49 9.38	+0.132	+0.603	+0.118	-0.503	.....	40.27	.....
February 26, Mg.										
50	Boss 2550.....	16	9 27 23.52	+0.167	+0.645	+0.010	+0.175	+0.187	51.44	-32.45
51	Boss 2601.....	12	9 37 16.24	+0.196	+0.587	+0.012	+0.257	-0.018	43.92	-32.57
52	μ Leonis.....	20	9 48 27.19	+0.216	+0.527	+0.010	+0.235	+0.126	55.09	-32.47
53	Boss 2681.....	20	9 56 38.30	+0.206	+0.555	+0.011	+0.243	+0.078	6.16	-32.47
54	λ Urse Majoris.....	20	10 12 30.47	+0.206	+0.518	+0.012	+0.282	-0.057	58.16	-32.55
55	30 H. Camelopardalis...	32	10 21 33.65	+0.223	+0.453	-0.131	+1.313	.....	59.05	.....
56	Boss 2829.....	20	10 34 27.97	+0.236	+0.444	+0.011	+0.278	+0.058	55.81	-32.51
57	46 Leonis Minoris.....	20	10 49 5.37	+0.230	+0.527	+0.011	+0.278	+0.047	33.19	-32.52

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON II, 1914—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
1	Boss 2926.....	20	h m s 10 56 36.83	+0.218	+0.573	+0.012	+0.283	-0.011	4.54	-32.57
2	ϕ Urse Majoris.....	20	11 5 25.57	+0.230	+0.506	+0.013	+0.324	-0.076	53.29	-32.54
3	ν Urse Majoris.....	20	11 14 25.13	+0.260	+0.531	+0.011	+0.312	+0.038	52.97	-32.54
4	39 H. Cephei s. p.....	28	11 27 39.41	+0.270	+0.562	+0.290	-2.862	.....	13.12	.....
5	χ Urse Majoris.....	20	11 42 6.43	+0.272	+0.499	-0.014	+0.403	-0.120	34.17	-32.56
February 27, Mg.										
6	μ Geminorum.....	20	6 18 20.04	-0.227	+0.640	+0.010	-0.236	+0.198	47.09	-32.92
7	51 Aurigæ.....	20	6 33 16.94	+0.041*	+0.646	+0.012	+0.053	-0.006	44.05	-32.95
8	ϕ^s Aurigæ.....	20	6 41 7.50	+0.050	+0.630	+0.012	+0.069	-0.069	34.75	-32.76
9	θ Geminorum.....	20	6 47 42.07	+0.069	+0.661	+0.011	+0.083	+0.066	9.35	-32.88
10	Boss 1840.....	18	7 6 14.84	+0.089	+0.667	+0.010	+0.102	+0.113	42.08	-32.98
11	Boss 1897.....	20	7 15 39.52	+0.100	+0.621	+0.013	+0.142	-0.099	6.68	-32.90
12	ρ Geminorum.....	20	7 24 9.84	+0.112	+0.662	+0.011	+0.131	+0.093	37.10	-32.98
13	26 Lyncis.....	14	7 49 2.78	+0.127	+0.615	+0.013	+0.187	-0.141	30.18	-32.66
14	31 Lyncis.....	20	8 17 32.74	+0.181	+0.587	+0.012	+0.248	-0.065	0.06	-32.88
15	Groombridge 1450.....	20	8 27 55.10	+0.185	+0.644	+0.012	+0.237	+0.006	22.48	-32.88
16	Boss 2306.....	20	8 35 40.61	+0.186	+0.631	+0.013	+0.266	-0.114	7.89	-32.88
17	Boss 2426.....	16	8 58 17.80	+0.192	+0.622	+0.010	+0.205	+0.168	45.17	-33.01
February 27, H.										
18	40 Lyncis.....	16	9 16 24.53	+0.206	+0.596	+0.011	+0.249	+0.054	51.97	-32.87
19	μ Leonis.....	16	9 48 27.60	+0.242	+0.736	+0.010	+0.264	+0.177	55.09	-32.96
20	Boss 2681.....	20	9 56 38.70	+0.275	+0.745	+0.011	+0.324	+0.104	6.16	-32.98
21	λ Urse Majoris.....	20	10 12 30.78	+0.262	+0.633	+0.012	+0.359	-0.070	58.17	-32.91
22	30 H. Camelopardalis.....	32	10 21 32.66	+0.270	+0.531	-0.131	+1.590	.....	59.05	.....
23	Boss 2829.....	20	10 34 28.40	+0.292	+0.597	+0.011	+0.345	+0.078	55.81	-33.02
24	46 Leonis Minoris.....	20	10 49 5.72	+0.302	+0.708	+0.011	+0.365	+0.064	33.20	-32.96
25	Boss 2926.....	20	10 56 36.98	+0.313	+0.667	+0.012	+0.407	-0.013	4.55	-32.84
26	ϕ Urse Majoris.....	20	11 5 25.80	+0.310	+0.586	+0.013	+0.437	-0.088	53.90	-32.86
27	ν Urse Majoris.....	20	11 14 25.41	+0.319	+0.586	+0.011	+0.383	+0.064	52.98	-32.89
28	39 H. Cephei s. p.....	32	11 27 42.29	+0.337	+0.514	+0.290	-3.572	.....	13.02	.....
29	χ Urse Majoris.....	20	11 42 6.71	+0.354	+0.478	+0.014	+0.524	-0.115	34.19	-32.94
30	Groombridge 1830.....	20	11 48 36.82	+0.393	+0.529	+0.012	+0.503	+0.005	4.45	-32.89
31	Boss 3143.....	20	11 58 20.63	+0.391	+0.562	+0.012	+0.540	-0.063	48.04	-33.08
32	Boss 3194.....	20	12 12 34.36	+0.370	+0.616	+0.010	+0.392	+0.172	1.89	-33.04
March 3, Mg.										
33	μ Geminorum.....	20	6 18 21.48	-0.039	+0.410	+0.010	-0.041	+0.127	47.03	-34.55
34	51 Aurigæ.....	20	6 33 18.59	+0.008	+0.348	+0.012	+0.010	-0.003	43.98	-34.63
35	ϕ^s Aurigæ.....	20	6 41 9.20	+0.046	+0.299	+0.012	+0.063	-0.033	34.68	-34.56
36	θ Geminorum.....	20	6 47 43.69	+0.087	+0.357	+0.011	+0.104	+0.036	9.29	-34.55
37	51 H. Cephei.....	28	7 1 42.11	+0.143	+0.425	-0.327	+1.945	.....	2.36	.....
38	Boss 1897.....	20	7 15 41.11	+0.180	+0.380	+0.013	+0.256	-0.061	6.60	-34.72
39	ρ Geminorum.....	20	7 24 11.36	+0.204	+0.316	+0.011	+0.239	+0.044	37.05	-34.60
40	Boss 2001.....	20	7 34 9.86	+0.225	+0.330	+0.011	+0.274	+0.030	35.55	-34.63
41	26 Lyncis.....	20	7 49 4.40	+0.262	+0.334	+0.013	+0.385	-0.077	30.13	-34.59
42	χ Geminorum.....	20	7 58 50.70	+0.300	+0.334	+0.010	+0.333	+0.070	16.55	-34.56
43	31 Lyncis.....	18	8 17 34.12	+0.346	+0.322	+0.012	+0.474	-0.035	0.02	-34.55
44	Boss 2306.....	20	8 35 41.87	+0.411	+0.241	+0.013	+0.588	-0.043	7.85	-34.58
45	76 Draconis s. p.....	28	8 49 15.23	+0.455	+0.269	+0.118	-1.734	.....	40.81	.....
March 4, H.										
46	51 Aurigæ.....	18	6 33 19.25	-0.264	+0.158	+0.012	-0.343	-0.002	43.96	-34.96
47	ϕ^s Aurigæ.....	20	6 41 10.02	-0.302	+0.068	+0.012	-0.417	-0.007	34.66	-34.95
48	θ Geminorum.....	20	6 47 44.61	-0.352	+0.117	+0.011	-0.422	+0.012	9.27	-34.94
49	25 H. Camelopardalis.....	20	7 13 51.25	-0.138	+0.134	-0.124	-0.773	.....	13.96	.....
50	ρ Geminorum.....	20	7 24 12.26	-0.242	+0.164	+0.011	-0.283	+0.023	37.04	-34.97
51	Boss 2001.....	20	7 34 10.85	-0.292	+0.157	+0.011	-0.356	+0.014	35.54	-34.98
52	26 Lyncis.....	20	7 49 5.74	-0.375	+0.068	+0.013	-0.551	-0.016	30.11	-35.08
53	χ Geminorum.....	20	7 58 51.97	-0.465	+0.056	+0.010	-0.516	+0.013	16.55	-34.93
54	31 Lyncis.....	20	8 17 35.13	-0.075	+0.023	+0.012	-0.103	-0.003	0.01	-35.03
55	Groombridge 1450.....	20	8 27 57.64	-0.162	+0.033	+0.012	-0.207	0.000	22.43	-35.03
56	Boss 2306.....	20	8 35 43.29	-0.237	+0.107	+0.013	-0.339	-0.019	7.84	-35.11
57	76 Draconis s. p.....	32	8 49 13.49	-0.310	+0.107	+0.118	+1.181	.....	40.89	.....
58	Boss 2465.....	20	9 8 49.82	-0.426	+0.073	+0.012	-0.588	-0.008	14.14	-35.10
59	40 Lyncis.....	20	9 16 27.56	-0.538	+0.147	+0.011	-0.651	+0.013	51.95	-34.98
60	Boss 2550.....	20	9 27 27.02	-0.618	+0.267	+0.010	-0.649	+0.077	51.43	-35.03

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON II, 1914—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
March 4, Mg.										
1	μ Leonis.....	20	h m s 9 48 30.12	-0.040*	+0.325	+0.010	-0.044	+0.078	55.10	-35.06
2	Boss 2681.....	20	9 56 41.28	-0.149	+0.353	+0.011	-0.176	+0.049	6.16	-35.00
3	λ Ursæ Majoris.....	20	10 12 33.66	-0.245	+0.309	+0.012	-0.336	-0.034	58.19	-35.11
4	30 H. Camelopardalis.....	32	10 21 37.82	-0.337	+0.272	+0.131	-1.985	.....	58.94	.....
5	Boss 2829.....	20	10 34 31.35	-0.408	+0.365	+0.011	-0.481	+0.047	55.84	-35.09
6	46 Leonis Minoris.....	20	10 49 8.23	+0.011*	+0.349	+0.011	+0.013	+0.031	33.24	-35.05
7	Boss 2926.....	20	10 56 39.72	-0.058	+0.348	+0.012	-0.075	-0.007	4.60	-35.05
8	ϕ Ursæ Majoris.....	20	11 5 28.62	-0.124	+0.349	+0.013	-0.175	-0.052	53.35	-35.06
9	ν Ursæ Majoris.....	20	11 14 28.32	-0.199	+0.385	+0.011	-0.239	+0.042	53.04	-35.09
10	39 H. Cephei s. p.	32	11 27 39.95	-0.320	+0.398	+0.290	+3.392	.....	12.75	.....
11	χ Ursæ Majoris.....	20	11 42 9.99	-0.462	+0.356	+0.014	-0.684	-0.085	34.27	-34.96
12	Boss 3143.....	20	11 58 23.94	-0.580	+0.356	+0.012	-0.800	-0.039	48.12	-34.99
13	Boss 3194.....	20	12 12 36.96	+0.024*	+0.415	+0.010	+0.025	+0.116	1.97	-35.14
14	Boss 3242.....	20	12 23 16.82	-0.059	+0.507	+0.010	-0.066	+0.101	41.68	-35.18
15	8 Canum Venaticorum.....	20	12 30 17.83	-0.129	+0.477	+0.012	-0.173	-0.033	42.56	-35.08
March 7, Mg.										
16	ϕ^s Aurigæ.....	20	6 41 10.65	+0.120	+0.330	+0.012	+0.166	-0.036	34.60	-36.19
17	θ Geminorum.....	20	6 47 45.28	+0.104	+0.376	+0.011	+0.125	+0.038	9.22	-36.23
18	51 H. Cephei.....	24	7 1 41.52	+0.109	+0.366	-0.327	+1.482	.....	1.13	.....
19	Boss 1897.....	20	7 15 42.64	+0.109	+0.226	+0.013	+0.155	-0.036	6.54	-36.23
20	ρ Geminorum.....	20	7 24 13.11	+0.079	+0.259	+0.011	+0.092	+0.036	37.00	-36.25
21	26 Lyncis.....	20	7 49 6.27	+0.097	+0.313	+0.013	+0.143	-0.072	30.06	-36.29
22	χ Geminorum.....	20	7 58 52.55	+0.104	+0.300	+0.010	+0.115	+0.063	16.51	-36.23
23	Groombridge 1450.....	20	8 27 58.58	+0.108	+0.140	+0.012	+0.138	+0.001	22.41	-36.32
24	Boss 2306.....	20	8 35 43.95	+0.109	+0.185	+0.013	+0.156	-0.033	7.82	-36.27
25	76 Draconis s. p.	28	8 49 16.62	+0.095	+0.185	+0.118	-0.362	.....	41.16	.....
26	Boss 2426.....	20	8 58 21.27	+0.087	+0.230	+0.010	+0.093	+0.062	45.13	-36.30
27	Boss 2465.....	20	9 8 50.27	+0.103	+0.195	+0.012	+0.142	-0.021	14.13	-36.27
28	40 Lyncis.....	20	9 16 28.10	+0.092	+0.146	+0.011	+0.111	+0.013	51.94	-36.30
March 7, H.										
29	Boss 2550.....	20	9 27 27.56	+0.080	+0.199	+0.010	+0.084	+0.058	51.43	-36.28
30	Boss 2601.....	20	9 37 20.08	+0.069	+0.145	+0.012	+0.090	-0.004	43.92	-36.26
31	μ Leonis.....	20	9 48 31.22	+0.061	+0.168	+0.010	+0.066	+0.040	55.10	-36.24
32	Boss 2681.....	20	9 56 42.36	+0.066	+0.255	+0.011	+0.078	+0.036	6.16	-36.32
33	λ Ursæ Majoris.....	20	10 12 34.33	+0.103	+0.241	+0.012	+0.141	-0.027	58.19	-36.27
34	30 H. Camelopardalis.....	32	10 21 36.50	+0.097	+0.248	-0.131	+0.571	.....	58.94	.....
35	Boss 2829.....	20	10 34 32.01	+0.065	+0.268	+0.011	+0.077	+0.035	55.86	-36.27
36	Boss 2926.....	20	10 56 40.81	+0.065	+0.256	+0.012	+0.084	-0.005	4.62	-36.28
37	ϕ Ursæ Majoris.....	20	11 5 29.58	+0.067	+0.258	+0.013	+0.094	-0.039	53.38	-36.27
38	ν Ursæ Majoris.....	20	11 14 29.28	+0.073	+0.264	+0.011	+0.088	+0.029	53.06	-36.35
39	39 H. Cephei s. p.	32	11 27 44.69	+0.071	+0.266	+0.290	-0.753	.....	12.54	.....
40	χ Ursæ Majoris.....	20	11 42 10.56	+0.072	+0.225	+0.014	+0.107	-0.054	34.31	-36.32
41	Groombridge 1830.....	20	11 48 40.74	+0.094	+0.219	+0.012	+0.120	+0.002	4.57	-36.30
42	Boss 3143.....	20	11 58 24.44	+0.096	+0.254	+0.012	+0.132	-0.028	48.17	-36.39
43	Boss 3242.....	20	12 23 17.97	+0.104	+0.261	+0.010	+0.116	+0.052	41.73	-36.42
44	8 Canum Venaticorum.....	20	12 30 18.86	+0.087	+0.262	+0.012	+0.117	-0.018	42.62	-36.35
45	Boss 3322.....	16	12 41 44.89	+0.090	+0.260	+0.013	+0.129	-0.047	8.56	-36.43
46	32 H. Camelopardalis.....	32	12 49 22.29	+0.091	+0.222	-0.150	+0.603	.....	45.51	.....
March 9, Mg.										
47	ϕ^s Aurigæ.....	20	6 41 11.60	+0.101	+0.329	+0.012	+0.139	-0.036	34.56	-37.16
48	θ Geminorum.....	20	6 47 46.16	+0.087	+0.270	+0.011	+0.104	+0.027	9.18	-37.12
49	Boss 1840.....	20	7 6 18.95	+0.060	+0.247	+0.010	+0.069	+0.042	41.93	-37.14
50	25 H. Camelopardalis.....	32	7 13 51.56	+0.063	+0.236	-0.124	+0.353	.....	13.33	.....
51	ρ Geminorum.....	20	7 24 13.99	+0.079	+0.245	+0.011	+0.092	+0.034	36.97	-37.16
52	Boss 2001.....	20	7 34 12.47	+0.077	+0.279	+0.011	+0.094	+0.025	35.48	-37.12
53	26 Lyncis.....	20	7 49 7.13	+0.067	+0.260	+0.013	+0.098	-0.060	30.03	-37.15
54	χ Geminorum.....	20	7 58 53.46	+0.073	+0.269	+0.010	+0.081	+0.056	16.49	-37.12
55	31 Lyncis.....	20	8 17 37.03	+0.088	+0.271	+0.012	+0.121	-0.030	59.95	-37.18
56	Groombridge 1450.....	20	8 27 59.37	+0.092	+0.261	+0.012	+0.118	+0.003	22.39	-37.11
57	Boss 2306.....	20	8 35 44.82	+0.083	+0.275	+0.013	+0.119	-0.050	7.80	-37.10
58	Boss 2426.....	20	8 58 22.07	+0.074	+0.275	+0.010	+0.079	+0.074	45.12	-37.11
59	Boss 2465.....	20	9 8 51.25	+0.081	+0.269	+0.012	+0.112	-0.030	14.12	-37.22
59	40 Lyncis.....	20	9 16 28.97	+0.079	+0.269	+0.011	+0.096	+0.024	51.93	-37.17

* Level adjusted.

TABLE IX.—*Observations for Clock Corrections—Continued.*

WASHINGTON II, 1914—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
March 9, H.										
1	λ Ursæ Majoris.....	20	^h ^m ^s 10 12 35.31	+0.049	+0.261	+0.012	+0.067	-0.029	58.19	-37.17
March 10, H.										
2	51 H. Cephei.....	28	7 1 41.66	-0.006	+0.273	-0.327	-0.082	.....	0.10	.....
3	Boss 1897.....	20	7 15 44.04	-0.012	+0.231	+0.013	-0.017	-0.037	6.49	-37.51
4	ρ Geminorum.....	20	7 24 14.45	-0.001	+0.259	+0.011	-0.001	+0.036	36.95	-37.55
5	Boss 2001.....	20	7 34 12.95	-0.012	+0.296	+0.011	-0.014	+0.027	35.46	-37.51
6	26 Lyncis.....	20	7 49 7.55	-0.016	+0.269	+0.013	-0.022	-0.062	30.02	-37.46
7	χ Geminorum.....	20	7 58 53.97	-0.005	+0.264	+0.010	-0.006	+0.055	16.48	-37.55
8	Groombridge 1450....	20	8 27 59.94	-0.009	+0.268	+0.012	-0.012	+0.003	22.38	-37.56
9	Boss 2306.....	20	8 35 45.33	-0.005	+0.275	+0.013	-0.007	-0.050	7.79	-37.50
10	76 Draconis s. P.	32	8 49 17.23	-0.007	+0.241	+0.118	+0.027	.....	41.32	.....
11	Boss 2426.....	20	8 58 22.60	-0.005	+0.241	+0.010	-0.005	+0.065	45.12	-37.55
12	40 Lyncis.....	20	9 16 29.47	-0.001	+0.260	+0.011	-0.001	+0.023	51.93	-37.57
13	Boss 2550.....	20	9 27 28.92	+0.006	+0.256	+0.010	+0.006	+0.074	51.42	-37.59
14	Boss 2601.....	20	9 37 21.50	+0.006	+0.255	+0.012	+0.008	-0.008	43.91	-37.60
15	μ Leonis.....	20	9 48 32.60	-0.001	+0.226	+0.010	-0.001	+0.054	55.09	-37.57
March 12, H.										
16	μ Geminorum.....	20	6 18 25.07	+0.069	+0.334	+0.010	+0.072	+0.104	46.88	-38.38
17	51 Aurigæ.....	20	6 33 22.16	+0.072	+0.298	+0.012	+0.094	-0.003	43.81	-38.45
18	ϕ^s Aurigæ.....	14	6 41 12.73	+0.064	+0.225	+0.012	+0.088	-0.025	34.50	-38.31
19	θ Geminorum.....	20	6 47 47.40	+0.056	+0.261	+0.011	+0.067	+0.026	9.13	-38.37
20	51 H. Cephei.....	32	7 1 41.08	+0.078	+0.299	-0.327	+1.060	.....	59.37	.....
21	Boss 1897.....	20	7 15 44.67	+0.087	+0.286	+0.013	+0.124	-0.046	6.46	-38.30
22	ρ Geminorum.....	20	7 24 15.18	+0.072	+0.291	+0.011	+0.084	+0.041	36.92	-38.40
23	Boss 2001.....	20	7 34 13.62	+0.079	+0.306	+0.011	+0.096	+0.028	35.44	-38.32
24	26 Lyncis.....	20	7 49 8.26	+0.075	+0.345	+0.013	+0.110	-0.079	29.98	-38.32
25	χ Geminorum.....	20	7 58 54.65	+0.069	+0.344	+0.010	+0.077	+0.072	16.46	-38.35
26	31 Lyncis.....	20	8 17 38.18	+0.093	+0.312	+0.012	+0.127	-0.034	59.90	-38.38
March 12, Mg.										
27	Boss 2306.....	20	8 35 46.11	+0.102	+0.277	+0.013	+0.146	-0.050	7.77	-38.45
28	76 Draconis s. P.	28	8 49 18.36	+0.102	+0.276	+0.118	-0.392	.....	41.53	.....
29	Boss 2426.....	20	8 58 23.29	+0.077	+0.316	+0.010	+0.082	+0.085	45.11	-38.36
30	Boss 2465.....	20	9 8 52.49	+0.057	+0.317	+0.012	+0.079	-0.035	14.10	-38.45
31	40 Lyncis.....	20	9 16 30.22	+0.059	+0.307	+0.011	+0.071	+0.028	51.91	-38.42
32	1 H. Draconis.....	32	9 25 48.73	+0.063	+0.344	-0.111	+0.321	.....	8.86	.....
33	Boss 2601.....	20	9 37 22.36	+0.075	+0.303	+0.012	+0.098	-0.009	43.91	-38.55
34	μ Leonis.....	20	9 48 33.39	+0.084	+0.303	+0.010	+0.092	+0.073	55.09	-38.48
35	Boss 2681.....	20	9 56 44.43	+0.083	+0.347	+0.011	+0.098	+0.049	6.17	-38.42
36	λ Ursæ Majoris.....	20	10 12 36.53	+0.095	+0.336	+0.012	+0.130	-0.037	58.18	-38.45
37	30 H. Camelopardalis...	32	10 21 38.69	+0.106	+0.299	-0.131	+0.624	.....	58.84	.....
38	Boss 2829.....	20	10 34 34.13	+0.102	+0.312	+0.011	+0.120	+0.041	55.89	-38.41
39	46 Leonis Minoris....	20	10 49 11.57	+0.095	+0.351	+0.011	+0.115	+0.032	33.28	-38.45
40	Boss 2926.....	20	10 56 42.97	+0.097	+0.336	+0.012	+0.126	-0.007	4.66	-38.44
41	ϕ Ursæ Majoris.....	20	11 5 31.77	+0.089	+0.324	+0.013	+0.125	-0.049	53.41	-38.45
42	ν Ursæ Majoris.....	20	11 14 31.38	+0.075	+0.370	+0.011	+0.090	+0.041	53.10	-38.42
March 13, Mg.										
43	ϕ^s Aurigæ.....	20	6 41 13.10	+0.051	+0.140	+0.012	+0.070	-0.034	34.48	-38.67
44	θ Geminorum.....	20	6 47 47.82	+0.055	+0.146	+0.011	+0.066	+0.015	9.11	-38.80
45	51 H. Cephei.....	32	7 1 40.69	+0.064	+0.186	-0.327	+0.870	.....	58.84	.....
46	Boss 1897.....	20	7 15 45.10	+0.072	+0.164	+0.013	+0.102	-0.026	6.44	-38.75
47	ρ Geminorum.....	20	7 24 15.64	+0.069	+0.174	+0.011	+0.081	+0.024	36.91	-38.85
48	26 Lyncis.....	20	7 49 8.64	+0.079	+0.229	+0.013	+0.116	-0.053	29.96	-38.76
49	χ Geminorum.....	20	7 58 55.08	+0.084	+0.188	+0.010	+0.093	+0.039	16.44	-38.78
50	31 Lyncis.....	20	8 17 38.57	+0.082	+0.181	+0.012	+0.112	-0.020	59.89	-38.78
51	Groombridge 1450....	20	8 28 1.06	+0.087	+0.245	+0.012	+0.111	+0.002	22.34	-38.84
March 13, H.										
52	76 Draconis s. P.	32	8 49 19.00	+0.087	+0.250	+0.118	-0.331	.....	41.61	.....
53	Boss 2426.....	20	8 58 23.74	+0.068	+0.054*	+0.010	+0.073	+0.015	45.10	-38.74
54	Boss 2465.....	20	9 8 52.80	+0.067	-0.056	+0.012	+0.092	+0.006	14.09	-38.81
55	40 Lyncis.....	20	9 16 30.63	+0.067	+0.004	+0.011	+0.081	0.000	51.90	-38.82

* Instrument jarred.

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON II, 1914—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
			^h ^m ^s	^s	^s	^s	^s	^s	^s	^s
1	Boss 2550.....	20	9 27 30.09	+0.054	+0.165	+0.010	+0.057	+0.048	51.41	-38.80
2	Boss 2601.....	20	9 37 22.69	+0.055	+0.228	+0.012	+0.072	-0.007	43.90	-38.87
3	μ Leonis.....	20	9 48 33.78	+0.062	+0.249	+0.010	+0.068	+0.060	55.08	-38.84
4	Boss 2681.....	20	9 56 44.89	+0.075	+0.249	+0.011	+0.088	+0.035	6.17	-38.85
5	λ Ursæ Majoris.....	20	10 12 36.96	+0.077	+0.223	+0.012	+0.105	-0.025	58.18	-38.87
6	30 H. Camelopardalis.....	32	10 21 38.61	+0.079	+0.239	-0.131	+0.465	.....	58.78	.....
7	Boss 2829.....	20	10 34 34.54	+0.094	+0.275	+0.011	+0.111	+0.036	55.89	-38.81
8	46 Leonis Minoris.....	20	10 49 12.05	+0.087	+0.295	+0.011	+0.105	+0.027	33.28	-38.91
9	ψ Ursæ Majoris.....	20	11 5 32.12	+0.080	+0.260	+0.013	+0.113	-0.039	53.41	-38.80
10	ν Ursæ Majoris.....	20	11 14 31.78	+0.098	+0.264	+0.011	+0.118	+0.029	53.11	-38.83
11	39 H. Cephei s. P.	32	11 27 47.22	+0.087	+0.231	+0.289	-0.922	.....	12.30	.....
March 14, H.										
12	51 Aurigæ.....	20	6 33 22.93	-0.054	-0.048	+0.014	-0.070	0.000	43.77	-39.10
13	ϕ^2 Aurigæ.....	20	6 41 13.71	-0.077	-0.046	+0.015	-0.106	+0.005	34.45	-39.17
14	θ Geminorum.....	20	6 47 48.34	-0.079	+0.069	+0.013	-0.095	+0.007	9.09	-39.17
15	51 H. Cephei.....	32	7 1 40.36	-0.092	+0.129	-0.327	-1.251	.....	58.41	.....
16	Boss 1897.....	20	7 15 45.72	-0.102	+0.062	+0.016	-0.145	-0.010	6.42	-39.16
17	ρ Geminorum.....	20	7 24 16.16	-0.087	+0.110	+0.013	-0.102	+0.015	36.89	-39.20
18	Boss 2001.....	20	7 34 14.61	-0.092	+0.257	+0.013	-0.112	+0.023	35.41	-39.12
19	26 Lyncis.....	20	7 49 9.30	-0.119	+0.296	+0.016	-0.175	-0.068	29.94	-39.13
20	χ Geminorum.....	20	7 58 55.65	-0.105	+0.294	+0.012	-0.117	+0.041	16.43	-39.16
21	31 Lyncis.....	20	8 17 39.17	-0.109	+0.301	+0.015	-0.149	-0.033	59.87	-39.13
22	Groombridge 1450.....	20	8 28 1.69	-0.122	+0.315	+0.014	-0.156	+0.003	22.33	-39.22
23	Boss 2306.....	20	8 35 47.10	-0.115	+0.272	+0.016	-0.164	-0.049	7.74	-39.16
March 14, Mg.										
24	76 Draconis s. P.	28	8 49 19.04	-0.115	+0.230	+0.118	+0.438	.....	41.80	.....
25	Boss 2426.....	20	8 58 24.33	-0.108	+0.266	+0.012	-0.116	+0.072	45.09	-39.21
26	Boss 2465.....	20	9 8 53.45	-0.123	+0.268	+0.015	-0.170	-0.029	14.08	-39.19
27	40 Lyncis.....	20	9 16 31.19	-0.130	+0.302	+0.013	-0.157	+0.027	51.89	-39.18
28	1 H. Draconis.....	28	9 25 50.12	-0.102	+0.329	-0.111	-0.519	.....	8.68	.....
29	Boss 2601.....	20	9 37 23.29	-0.102	+0.253	+0.014	-0.134	-0.008	43.90	-39.26
30	μ Leonis.....	20	9 48 34.38	-0.116	+0.248	+0.012	-0.126	+0.060	55.08	-39.25
31	Boss 2681.....	14	9 56 45.42	-0.117	+0.283	+0.013	-0.138	+0.040	6.16	-39.18
32	λ Ursæ Majoris.....	20	10 12 37.63	-0.114	+0.258	+0.015	-0.156	-0.028	58.18	-39.27
33	30 H. Camelopardalis.....	24	10 21 40.68	-0.105	+0.225	-0.131	-0.618	.....	58.72	.....
34	Boss 2829.....	20	10 34 35.27	-0.112	+0.229	+0.013	-0.132	+0.030	55.89	-39.29
35	46 Leonis Minoris.....	20	10 49 12.63	-0.117	+0.249	+0.013	-0.142	+0.022	33.28	-39.24
36	Boss 2926.....	20	10 56 44.06	-0.107	+0.226	+0.014	-0.139	-0.005	4.66	-39.27
37	ψ Ursæ Majoris.....	20	11 5 32.81	-0.102	+0.185	+0.016	-0.144	-0.028	53.42	-39.23
38	ν Ursæ Majoris.....	20	11 14 32.43	-0.102	+0.198	+0.013	-0.122	+0.022	53.11	-39.23
39	39 H. Cephei s. P.	28	11 27 47.14	-0.109	+0.224	+0.289	+1.155	.....	12.30	.....
March 18, H.										
40	μ Geminorum.....	20	6 47 49.98	-0.036	+0.404	+0.013	-0.043	+0.040	9.02	-40.97
41	51 H. Cephei.....	32	7 1 44.20	-0.043	+0.375	-0.327	-0.585	.....	56.91	.....
42	Boss 1897.....	20	7 15 47.34	-0.054	+0.358	+0.016	-0.077	-0.057	6.35	-40.87
43	ρ Geminorum.....	20	7 24 17.73	-0.056	+0.381	+0.013	-0.066	+0.053	36.82	-40.91
44	26 Lyncis.....	20	7 49 10.97	-0.063	+0.381	+0.016	-0.093	-0.088	29.85	-40.96
45	χ Geminorum.....	20	7 58 57.38	-0.082	+0.381	+0.012	-0.091	+0.080	16.45	-40.93
46	31 Lyncis.....	20	8 17 40.87	-0.108	+0.336	+0.015	-0.148	-0.037	59.81	-40.89
47	Groombridge 1450.....	20	8 28 3.37	-0.108	+0.338	+0.014	-0.138	+0.003	22.27	-40.98
48	Boss 2306.....	20	8 35 48.78	-0.115	+0.340	+0.016	-0.164	-0.061	7.69	-40.88
49	76 Draconis s. P.	28	8 49 20.84	-0.124	+0.335	+0.118	+0.472	.....	42.25	.....
50	Boss 2426.....	20	8 58 26.07	-0.109	+0.346	+0.012	-0.117	+0.093	45.06	-41.00
51	40 Lyncis.....	20	9 16 32.91	-0.099	+0.410	+0.013	-0.120	+0.037	51.86	-40.98
March 18, Mg.										
52	Boss 2601.....	20	9 37 24.99	-0.117	+0.409	+0.014	-0.153	-0.012	43.87	-40.97
53	μ Leonis.....	20	9 48 36.09	-0.122	+0.353	+0.012	-0.133	+0.085	55.06	-40.99
54	Boss 2681.....	20	9 56 47.17	-0.122	+0.411	+0.013	-0.144	+0.058	6.15	-40.95
55	λ Ursæ Majoris.....	20	10 12 39.34	-0.141	+0.364	+0.015	-0.193	-0.040	58.15	-40.97
56	30 H. Camelopardalis.....	32	10 21 42.36	-0.150	+0.315	-0.131	-0.883	.....	58.46	.....
57	Boss 2829.....	20	10 34 37.00	-0.148	+0.341	+0.013	-0.175	+0.044	55.89	-40.99
58	46 Leonis Minoris.....	20	10 49 14.46	-0.159	+0.385	+0.013	-0.192	+0.035	33.29	-41.03

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON II, 1914—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi- muth.	Contact.	Level.	Azi- muth.		
March 20, H.										
1	51 H. Cephei.....	32	h m s 7 1 44.72	-0.001	+0.439	-0.327	-0.136	.....	56.23	.....
2	Boss 1897.....	20	7 15 48.28	-0.131	+0.415	+0.016	-0.186	-0.066	6.31	-41.73
3	ρ Geminorum.....	20	7 24 18.76	-0.204	+0.415	+0.013	-0.239	+0.058	36.79	-41.80
4	Boss 2001.....	20	7 34 17.20	-0.148	+0.419	+0.013	-0.181	+0.038	35.32	-41.75
5	26 Lyncis.....	20	7 49 11.72	-0.065†	+0.314	+0.016	-0.096	-0.072	29.81	-41.76
6	χ Geminorum.....	20	7 58 58.10	-0.072	+0.269	+0.012	-0.080	+0.056	16.34	-41.75
7	31 Lyncis.....	20	8 17 41.74	-0.089	+0.298	+0.015	-0.122	-0.033	59.78	-41.82
8	Groombridge 1450....	20	8 28 4.18	-0.116	+0.299	+0.014	-0.148	+0.003	22.24	-41.81
9	Boss 2306.....	20	8 35 49.65	-0.122	+0.260	+0.016	-0.174	-0.047	7.66	-41.79
10	76 Draconis s. P.	32	8 49 22.30	-0.119	+0.202	+0.118	+0.453	.....	42.44	.....
11	Boss 2426.....	20	8 58 26.83	-0.122	+0.329	+0.012	-0.131	+0.089	45.05	-41.75
12	Boss 2465.....	20	9 8 55.99	-0.129	+0.462	+0.015	-0.178	-0.051	14.02	-41.76
13	40 Lyncis.....	20	9 16 33.77	-0.134	+0.503	+0.013	-0.162	+0.045	51.84	-41.83
March 20, Mg.										
14	Boss 2550.....	20	9 27 33.12	-0.130	+0.540	+0.012	-0.136	+0.157	51.37	-41.78
15	Boss 2601.....	20	9 37 25.84	-0.115	+0.443	+0.014	-0.151	-0.013	43.85	-41.84
16	μ Leonis.....	20	9 48 36.91	-0.102	+0.446	+0.012	-0.111	+0.107	55.05	-41.87
17	Boss 2681.....	20	9 56 48.05	-0.109	+0.481	+0.013	-0.129	+0.067	6.14	-41.86
18	λ Ursæ Majoris.....	20	10 12 40.21	-0.128	+0.403	+0.015	-0.175	-0.044	58.15	-41.86
19	30 H. Camelopardalis...	24	10 21 43.04	-0.119	+0.398	-0.131	-0.701	.....	58.38	.....
20	Boss 2829.....	20	10 34 37.74	-0.112	+0.473	+0.013	-0.132	+0.061	55.89	-41.79
21	46 Leonis Minoris.....	20	10 49 15.27	-0.119	+0.494	+0.013	-0.144	+0.044	33.29	-41.89
22	Boss 2926.....	20	10 56 46.67	-0.113	+0.416	+0.014	-0.147	-0.008	4.68	-41.85
23	ϕ Ursæ Majoris.....	20	11 5 35.48	-0.113	+0.377	+0.016	-0.159	-0.057	53.43	-41.85
24	ν Ursæ Majoris.....	20	11 14 35.06	-0.119	+0.420	+0.013	-0.143	+0.046	53.13	-41.85
25	39 H. Cephei s. P.	28	11 27 47.47	-0.121	+0.424	+0.290	+1.282	.....	12.68	.....
March 23, Mg.										
26	χ Geminorum.....	20	7 58 59.33	+0.072	+0.254	+0.012	+0.080	+0.053	16.30	-43.17
27	31 Lyncis.....	20	8 17 42.71	+0.073	+0.293	+0.015	+0.100	-0.032	59.72	-43.07
28	Groombridge 1450....	20	8 28 5.20	+0.087	+0.299	+0.014	+0.111	+0.003	22.20	-43.13
29	Boss 2306.....	20	8 35 50.66	+0.096	+0.302	+0.016	+0.137	-0.054	7.62	-43.14
30	76 Draconis s. P.	32	8 49 24.10	+0.098	+0.300	+0.118	-0.373	.....	42.78	.....
31	Boss 2426.....	20	8 58 27.97	+0.099	+0.337	+0.012	+0.106	+0.091	45.01	-43.17
32	Boss 2465.....	20	9 8 56.94	+0.104	+0.329	+0.015	+0.144	-0.036	13.98	-43.08
33	40 Lyncis.....	20	9 16 34.81	+0.104	+0.330	+0.013	+0.126	+0.030	51.80	-43.18
34	1 H. Draconis.....	32	9 25 52.35	+0.099	+0.310	-0.111	+0.504	.....	8.02	.....
March 23, H.										
35	Boss 2601.....	20	9 37 26.82	+0.099	+0.262	+0.014	+0.130	-0.008	43.82	-43.14
36	μ Leonis.....	20	9 48 37.98	+0.112	+0.265	+0.012	+0.122	+0.064	55.02	-43.16
37	Boss 2681.....	20	9 56 49.04	+0.111	+0.268	+0.013	+0.131	+0.038	6.12	-43.10
38	λ Ursæ Majoris.....	20	10 12 41.18	+0.093	+0.260	+0.015	+0.127	-0.029	58.12	-43.17
39	30 H. Camelopardalis...	32	10 21 42.34	+0.080	+0.254	-0.131	+0.471	.....	58.23	.....
40	Boss 2829.....	20	10 34 38.82	+0.097	+0.358	+0.013	+0.114	+0.047	55.88	-43.11
41	46 Leonis Minoris.....	20	10 49 16.32	+0.103	+0.442	+0.013	+0.125	+0.040	33.28	-43.22
42	Boss 2926.....	20	10 56 47.68	+0.079	+0.345	+0.014	+0.103	-0.007	4.67	-43.12
43	ϕ Ursæ Majoris.....	20	11 5 36.45	+0.082	+0.302	+0.016	+0.116	-0.045	53.42	-43.12
44	ν Ursæ Majoris.....	20	11 14 36.17	+0.075	+0.381	+0.013	+0.090	+0.042	53.13	-43.18
45	39 H. Cephei s. P.	32	11 27 49.80	+0.063	+0.386	+0.290	-0.668	.....	12.76	.....
46	χ Ursæ Majoris.....	20	11 42 17.50	+0.074	+0.337	+0.017	+0.110	-0.081	34.42	-43.13
March 24, H.										
47	51 H. Cephei.....	32	7 1 41.24	-0.004	+0.220	+0.327	-0.054	.....	54.61	.....
48	Boss 1897.....	20	7 15 49.71	-0.007	+0.248	+0.016	-0.010	-0.040	6.22	-43.47
49	ρ Geminorum.....	20	7 24 20.23	+0.006	+0.246	+0.013	+0.007	+0.034	36.72	-43.56
50	Boss 2001.....	20	7 34 18.76	-0.011	+0.268	+0.013	-0.013	+0.024	35.25	-43.53
51	26 Lyncis.....	20	7 49 13.32	-0.027	+0.309	+0.016	-0.040	-0.071	29.72	-43.50
52	χ Geminorum.....	20	7 58 59.71	-0.021	+0.388	+0.012	-0.023	+0.081	16.28	-43.50
53	31 Lyncis.....	20	8 17 43.27	-0.014	+0.424	+0.015	-0.019	-0.047	59.71	-43.51
54	Boss 2306.....	20	8 35 51.14	-0.001	+0.363	+0.016	-0.001	-0.065	7.60	-43.59
55	76 Draconis s. P.	32	8 49 24.09	-0.004	+0.311	+0.118	-0.015	.....	42.90	.....
56	Boss 2426.....	20	8 58 28.46	-0.026	+0.277	+0.012	-0.028	+0.075	45.00	-43.52
57	Boss 2465.....	20	9 8 57.58	-0.026	+0.278	+0.015	-0.036	-0.031	13.96	-43.57
58	40 Lyncis.....	20	9 16 35.37	-0.016	+0.309	+0.013	-0.019	+0.028	51.79	-43.60
59	1 H. Draconis.....	32	9 25 53.11	-0.016	+0.305	-0.111	-0.081	.....	7.93	.....

† Level adjusted.

TABLE IX.—Observations for Clock Corrections—Continued.

WASHINGTON II, 1914—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
March 24, Mg.										
1	Boss 2601.....	20	h m s 9 37 27.40	−0.012	+0.303	+0.014	−0.016	−0.009	43.81	−43.58
2	μ Leonis.....	20	9 48 38.50	−0.012	+0.291	+0.012	−0.013	+0.070	55.01	−43.57
3	Boss 2681.....	20	9 56 49.60	−0.015	+0.361	+0.013	−0.018	+0.051	6.11	−43.54
4	30 H. Camelopardalis...	32	10 21 44.19	−0.008	+0.381	−0.131	−0.047	.....	58.16	.....
5	Boss 2829.....	20	10 34 39.38	0.000	+0.384	+0.013	0.000	+0.050	55.87	−43.57
6	46 Leonis Minoris.....	20	10 49 16.87	−0.009	+0.424	+0.013	−0.011	+0.038	33.28	−43.63
7	Boss 2926.....	20	10 56 48.28	−0.002	+0.346	+0.014	−0.003	−0.007	4.66	−43.62
8	φ Ursæ Majoris.....	20	11 5 37.11	+0.006	+0.237	+0.016	+0.008	−0.036	53.42	−43.68
9	ν Ursæ Majoris.....	20	11 14 36.71	−0.005	+0.272	+0.013	−0.006	+0.030	53.13	−43.62
10	39 H. Cephei s. p.....	28	11 27 52.49	−0.007	+0.264	+0.290	+0.074	.....	12.82	.....
11	χ Ursæ Majoris.....	20	11 42 18.10	−0.009	+0.157	+0.017	−0.013	−0.038	34.42	−43.65
12	Groombridge 1830....	20	11 48 48.43	−0.019	+0.298	+0.014	−0.024	+0.003	4.71	−43.71
March 26, H.										
13	25 H. Camelopardalis...	32	7 13 56.31	+0.041	+0.226	−0.124	+0.230	.....	10.92	.....
14	ρ Geminorum.....	20	7 24 20.99	+0.041	+0.224	+0.019	+0.048	+0.031	36.68	−44.41
15	Boss 2001.....	20	7 34 19.50	+0.041	+0.261	+0.020	+0.050	+0.023	35.20	−44.39
16	26 Lyncis.....	20	7 49 14.03	+0.057	+0.250	+0.024	+0.084	−0.058	29.67	−44.41
17	31 Lyncis.....	20	8 17 43.94	+0.087	+0.201	+0.022	+0.119	−0.022	59.66	−44.40
18	Groombridge 1450....	20	8 28 6.43	+0.109	+0.203	+0.020	+0.140	+0.002	22.15	−44.44
19	Boss 2306.....	20	8 35 51.87	+0.122	+0.192	+0.023	+0.174	−0.035	7.58	−44.45
20	76 Draconis s. P.....	32	8 49 26.38	+0.123	+0.155	+0.118	−0.469	.....	43.20	.....
21	Boss 2426.....	20	8 58 29.28	+0.115	+0.226	+0.018	+0.123	+0.061	44.97	−44.51
22	Boss 2465.....	20	9 8 58.26	+0.094	+0.301	+0.022	+0.130	−0.033	13.92	−44.46
23	40 Lyncis.....	20	9 16 36.06	+0.084	+0.298	+0.020	+0.102	+0.027	51.77	−44.44
24	1 H. Draconis.....	32	9 25 52.95	+0.084	+0.300	−0.111	+0.428	.....	7.71	.....
25	Boss 2601.....	20	9 37 28.14	+0.097	+0.264	+0.021	+0.127	−0.008	43.78	−44.50
March 26, Mg.										
26	μ Leonis.....	20	9 48 39.26	+0.117	+0.231	+0.018	+0.128	+0.055	54.99	−44.47
27	Boss 2681.....	20	9 56 50.40	+0.122	+0.251	+0.019	+0.144	+0.035	6.09	−44.51
28	λ Ursæ Majoris.....	20	10 12 42.44	+0.111	+0.279	+0.022	+0.152	−0.031	58.10	−44.48
29	30 H. Camelopardalis...	32	10 21 43.69	+0.118	+0.258	−0.131	+0.695	.....	57.98	.....
30	Boss 2829.....	20	10 34 40.12	+0.130	+0.315	+0.019	+0.153	+0.041	55.85	−44.48
31	46 Leonis Minoris.....	20	10 49 17.55	+0.119	+0.429	+0.020	+0.144	+0.039	33.27	−44.48
32	Boss 2926.....	20	10 56 49.00	+0.107	+0.422	+0.021	+0.139	−0.008	4.65	−44.50
33	φ Ursæ Majoris.....	20	11 5 37.77	+0.114	+0.345	+0.023	+0.161	−0.052	53.41	−44.49
34	ν Ursæ Majoris.....	20	11 14 37.44	+0.132	+0.307	+0.019	+0.158	+0.034	53.13	−44.52
35	39 H. Cephei s. p.....	28	11 27 55.16	+0.123	+0.188	+0.290	−1.304	.....	13.02	.....
36	χ Ursæ Majoris.....	20	11 42 18.72	+0.112	+0.161	+0.024	+0.166	−0.039	34.42	−44.45
37	Groombridge 1830....	20	11 48 49.03	+0.120	+0.329	+0.020	+0.154	+0.003	4.72	−44.49
38	Boss 3143.....	20	11 58 32.68	+0.119	+0.308	+0.022	+0.164	−0.034	48.31	−44.52
April 3, H.										
39	χ Geminorum.....	20	7 59 3.90	+0.117	+0.199	+0.018	+0.130	+0.042	16.12	−47.97
40	Groombridge 1450....	20	8 28 9.74	+0.162	+0.319	+0.020	+0.207	+0.003	22.00	−47.97
41	Boss 2306.....	20	8 35 55.18	+0.172	+0.376	+0.023	+0.246	−0.068	7.35	−48.03
42	76 Draconis s. P.....	20	8 49 30.70	+0.182	+0.356	+0.118	−0.693	.....	44.32	.....
43	Boss 2426.....	20	8 58 32.62	+0.184	+0.390	+0.018	+0.197	+0.105	44.84	−48.10
44	Boss 2465.....	20	9 9 1.67	+0.144	+0.372	+0.022	+0.199	−0.041	13.76	−48.09
45	40 Lyncis.....	20	9 16 39.46	+0.136	+0.295	+0.020	+0.165	+0.027	51.65	−48.02
46	1 H. Draconis.....	32	9 25 55.50	+0.142	+0.310	−0.111	+0.723	.....	6.84	.....
47	Boss 2601.....	20	9 37 31.55	+0.140	+0.297	+0.021	+0.183	−0.009	43.65	−48.10
48	λ Ursæ Majoris.....	20	10 12 45.81	+0.162	+0.349	+0.022	+0.222	−0.038	58.01	−48.01
49	30 H. Camelopardalis...	32	10 21 45.93	+0.163	+0.252	−0.131	+0.960	.....	57.17	.....
April 3, Mg.										
50	Boss 2829.....	20	10 34 43.59	+0.155	+0.244	+0.019	+0.183	+0.032	55.78	−48.04
51	46 Leonis Minoris.....	20	10 49 21.04	+0.152	+0.286	+0.020	+0.184	+0.026	33.23	−48.04
52	Boss 2926.....	20	10 56 52.48	+0.154	+0.274	+0.021	+0.200	−0.005	4.58	−48.12
53	φ Ursæ Majoris.....	20	11 5 41.20	+0.162	+0.235	+0.023	+0.228	−0.035	53.37	−48.05
54	ν Ursæ Majoris.....	20	11 14 40.96	+0.168	+0.249	+0.019	+0.202	+0.027	53.10	−48.11
55	39 H. Cephei s. p.....	28	11 28 0.66	+0.155	+0.273	+0.290	−1.643	.....	14.27	.....
56	χ Ursæ Majoris.....	20	11 42 22.31	+0.169	+0.266	+0.024	+0.250	−0.064	34.41	−48.11
57	Groombridge 1830....	20	11 48 52.61	+0.162	+0.282	+0.020	+0.207	+0.003	4.73	−48.11
58	Boss 3143.....	20	11 58 36.19	+0.149	+0.286	+0.022	+0.206	−0.031	48.34	−48.05
59	Boss 3194.....	20	12 12 50.07	+0.148	+0.313	+0.018	+0.157	+0.088	2.23	−48.10
50	Boss 3242.....	20	12 23 29.84	+0.145	+0.368	+0.018	+0.162	+0.074	41.98	−48.11
61	8 Canum Venaticorum.	20	12 30 30.93	+0.149	+0.347	+0.021	+0.200	−0.024	42.90	−48.23

TABLE IX.—Observations for Clock Corrections—Continued.

PARIS I, 1913.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
November 1, H.										
1	30 H. Camelopardalis s. p.	32	h m s 22 20 19.22	— ^s 0.060	+ ^s 2.300	+ ^s 0.115	+ ^s 0.260	.....	41.13	.....
2	10 Lacertæ.....	20	22 35 17.92	—0.066	+2.340	+0.049	—0.083	+0.538	23.91	+5.49
3	Boss 5887.....	20	22 46 8.13	—0.061	+2.300	+0.067	—0.107	—0.462	13.11	+5.48
4	o Andromedæ.....	20	22 57 51.91	—0.061	+2.270	+0.051	—0.082	+0.363	57.68	+5.44
5	Boss 5975.....	20	23 8 30.94	—0.059	+2.260	+0.058	—0.090	0.000	36.45	+5.54
6	Boss 6008.....	20	23 16 37.98	—0.073	+2.300	+0.048	—0.091	+0.552	44.10	+5.61
7	Boss 6049.....	16	23 26 57.52	—0.066	+2.300	+0.049	—0.083	+0.506	3.59	+5.60
8	ψ Andromedæ.....	20	23 41 40.68	—0.055	+2.260	+0.055	—0.079	+0.158	46.32	+5.50
9	Boss 6148.....	20	23 52 43.44	—0.071	+2.270	+0.066	—0.124	—0.431	48.44	+5.49
10	β Cassiopeizæ.....	20	0 4 30.63	—0.077	+2.230	+0.073	—0.136	—0.736	35.27	+5.44
11	Boss 43.....	16	0 12 30.01	—0.059	+2.260	+0.048	—0.074	+0.542	36.05	+5.52
12	α Cassiopeizæ.....	20	0 35 32.74	—0.057	+2.260	+0.068	—0.101	—0.520	37.68	+5.49
13	32 ² H. Camelopardalis s. p.	28	0 47 59.73	—0.072	+2.300	+0.131	+0.366	.....	23.97	.....
14	μ Cassiopeizæ.....	20	1 2 28.00	—0.077	+2.300	+0.065	—0.132	—0.391	32.93	+5.39
15	Boss 321.....	20	1 22 25.25	—0.102	+2.300	+0.054	—0.144	+0.231	30.84	+5.45
November 1, Mg.										
16	γ Andromedæ.....	20	1 58 31.65	—0.127	+2.300	+0.051	—0.170	+0.368	37.55	+5.65
17	Boss 534.....	20	2 16 17.12	—0.122	+2.300	+0.067	—0.214	—0.460	22.05	+5.54
18	Boss 552.....	20	2 22 0.65	—0.089	+2.300	+0.060	—0.139	—0.092	5.96	+5.48
19	Boss 610.....	20	2 36 43.68	—0.082	+2.300	+0.050	—0.106	+0.460	49.61	+5.53
20	η Persei.....	20	2 44 20.88	—0.087	+2.300	+0.067	—0.152	—0.460	25.79	+5.47
21	Boss 672.....	14	2 53 54.62	—0.083	+2.300	+0.055	—0.121	+0.115	0.19	+5.53
22	Boss 713.....	20	3 3 36.41	—0.091	+2.260	+0.053	—0.127	+0.249	42.13	+5.54
23	α Persei.....	20	3 18 6.09	—0.091	+2.260	+0.059	—0.140	—0.045	11.43	+5.47
24	Boss 817.....	20	3 30 17.68	—0.104	+2.250	+0.057	—0.155	+0.045	23.22	+5.59
25	ν Persei.....	20	3 39 15.71	—0.099	+2.250	+0.052	—0.134	+0.338	21.56	+5.59
26	Boss 900.....	20	3 50 8.01	—0.104	+2.310	+0.060	—0.163	—0.092	13.27	+5.46
27	Boss 938.....	20	4 0 5.83	—0.118	+2.280	+0.059	—0.183	—0.091	11.20	+5.59
28	Boss 970.....	20	4 8 56.75	—0.128	+2.270	+0.050	—0.166	+0.431	2.65	+5.58
29	Boss 1003.....	20	4 15 14.86	—0.136	+2.340	+0.055	—0.196	+0.140	20.52	+5.66
November 5, H.										
30	ψ Andromedæ.....	20	23 41 40.55	—0.079	+2.230	+0.055	—0.114	+0.156	46.27	+5.62
31	Boss 6148.....	20	23 52 43.29	—0.085	+2.310	+0.066	—0.148	—0.439	48.36	+5.59
32	Boss 82.....	20	0 23 30.79	—0.097	+2.340	+0.053	—0.134	+0.281	36.48	+5.49
33	α Cassiopeizæ.....	20	0 35 32.84	—0.087	+2.340	+0.068	—0.154	—0.538	37.65	+5.43
34	32 ² H. Camelopardalis s. p.	32	0 48 0.34	—0.092	+2.340	+0.131	+0.467	.....	24.32	.....
35	μ Cassiopeizæ.....	20	1 2 27.97	—0.099	+2.300	+0.065	—0.169	—0.391	32.93	+5.46
36	Boss 298.....	10	1 14 35.79	—0.097	+2.280	+0.071	—0.179	—0.661	40.53	+5.51
37	ν Andromedæ.....	20	1 31 39.31	—0.105	+2.280	+0.050	—0.138	+0.410	45.22	+5.59
38	Boss 412.....	20	1 46 15.66	—0.104	+2.300	+0.065	—0.179	—0.414	20.77	+5.64
39	γ Andromedæ.....	20	1 58 31.72	—0.119	+2.320	+0.051	—0.159	+0.371	37.58	+5.60
November 5, Mg.										
40	6 Persei.....	20	2 7 48.25	—0.114	+2.330	+0.060	—0.179	—0.116	53.45	+5.44
41	Boss 534.....	20	2 16 17.15	—0.119	+2.180	+0.067	—0.208	—0.436	22.07	+5.49
42	Boss 552.....	20	2 22 0.78	—0.119	+2.140	+0.060	—0.186	—0.086	5.99	+5.42
43	Boss 610.....	20	2 36 43.73	—0.123	+2.260	+0.050	—0.159	+0.452	49.65	+5.58
44	η Persei.....	20	2 44 20.96	—0.127	+2.240	+0.067	—0.222	—0.448	25.86	+5.50
45	Boss 672.....	20	2 53 54.60	—0.105	+2.210	+0.055	—0.153	+0.110	0.24	+5.63
46	Boss 713.....	20	3 3 36.48	—0.109	+2.240	+0.053	—0.153	+0.246	42.20	+5.57
47	Boss 740.....	20	3 11 54.88	—0.117	+2.240	+0.052	—0.160	+0.269	0.65	+5.61
48	α Persei.....	20	3 18 6.12	—0.114	+2.240	+0.059	—0.176	—0.044	11.52	+5.56
49	Boss 817.....	20	3 30 17.71	—0.104	+2.280	+0.057	—0.155	+0.046	23.29	+5.63
50	ν Persei.....	20	3 39 15.80	—0.097	+2.300	+0.052	—0.131	+0.346	21.65	+5.58
51	Boss 900.....	20	3 50 7.98	—0.103	+2.180	+0.060	—0.162	—0.087	13.36	+5.57
52	Boss 938.....	20	4 0 5.82	—0.099	+2.180	+0.059	—0.153	—0.087	11.29	+5.65
53	Boss 970.....	8	4 8 56.75	—0.087	+2.300	+0.050	—0.113	+0.437	2.74	+5.62
54	Boss 1074.....	20	4 30 38.61	—0.094	+2.280	+0.050	—0.123	+0.410	44.55	+5.60
55	4 Camelopardalis.....	20	4 40 46.30	—0.099	+2.220	+0.069	—0.178	—0.533	51.22	+5.56
56	ε Ursæ Minoris s. p.	28	4 54 17.74	—0.099	+2.220	+0.103	+0.376	.....	37.79	.....

TABLE IX.—*Observations for Clock Corrections—Continued.*

PARIS I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
November 6, Mg.										
1	Boss 6008.....	20	h m s 23 16 38.16	-0.084	+1.860*	+0.048	-0.105	+0.446	44.02	+5.47
2	Boss 6049.....	20	23 26 57.66	-0.089	+1.850	+0.049	-0.112	+0.407	3.52	+5.52
3	Andromedæ.....	20	23 33 49.16	-0.101	+1.820	+0.052	-0.136	+0.255	54.97	+5.64
4	Andromedæ.....	20	23 41 40.48	-0.106	+1.840	+0.055	-0.153	+0.129	46.26	+5.75
5	Boss 6148.....	20	23 52 43.16	-0.100	+1.840	+0.066	-0.174	-0.350	48.34	+5.64
6	β Cassiopeia.....	20	0 4 30.39	-0.097	+1.830	+0.073	-0.183	-0.604	35.19	+5.51
7	Boss 43.....	20	0 12 29.95	-0.108	+1.870	+0.048	-0.135	+0.449	36.00	+5.69
8	Boss 82.....	20	0 23 30.81	-0.104	+1.900	+0.053	-0.144	+0.228	36.47	+5.53
9	α Cassiopeia.....	20	0 35 32.67	-0.094	+1.950	+0.068	-0.166	-0.448	37.64	+5.52
10	32 ¹ H. Camelopardalis s.p.	24	0 47 55.79	-0.090	+1.940	+0.131	+0.457	.....	16.98	....
November 6, H.										
11	γ Andromedæ.....	20	1 58 31.72	-0.086	+1.870	+0.051	-0.115	+0.299	37.58	+5.62
November 7, H.										
12	α Lacertæ.....	20	22 27 38.92	+0.015	+1.870	+0.054	+0.023	-0.056	44.45	+5.51
13	10 Lacertæ.....	34	22 35 17.76	+0.009	+1.900	+0.045	+0.011	+0.437	23.81	+5.56
14	Boss 5887.....	20	22 46 7.68	-0.001	+1.940	+0.062	-0.002	-0.388	12.94	+5.59
15	o Andromedæ.....	20	22 57 51.64	+0.009	+1.950	+0.047	+0.012	+0.312	57.58	+5.57
16	Boss 5975.....	20	23 8 30.70	+0.019	+1.950	+0.053	+0.029	0.000	36.32	+5.54
17	Boss 6049.....	20	23 26 57.44	+0.019	+1.940	+0.046	+0.024	+0.427	3.50	+5.56
18	ψ Andromedæ.....	20	23 41 40.48	-0.007	+1.870	+0.050	-0.010	+0.131	46.24	+5.59
19	Boss 6148.....	20	23 52 43.00	+0.019	+1.840	+0.061	+0.033	-0.350	48.32	+5.58
20	β Cassiopeia.....	20	0 4 30.21	+0.009	+1.820	+0.067	+0.017	-0.601	35.17	+5.48
21	Boss 43.....	20	0 12 29.94	+0.001	+1.860	+0.044	+0.001	+0.446	35.99	+5.56
22	Boss 82.....	20	0 23 30.53	+0.008	+1.870	+0.049	+0.011	+0.224	36.46	+5.65
23	α Cassiopeia.....	20	0 35 32.46	+0.008	+1.830	+0.063	+0.014	-0.421	37.63	+5.51
24	32 ² H. Camelopardalis s.p.	24	0 48 4.60	+0.004	+1.820	+0.131	-0.020	.....	24.51	....
25	μ Cassiopeia.....	20	1 2 27.68	+0.001	+1.830	+0.060	+0.002	-0.311	32.92	+5.49
26	Boss 298.....	20	1 14 35.37	-0.005	+1.830	+0.066	-0.009	-0.531	40.51	+5.61
27	υ Andromedæ.....	20	1 31 39.16	+0.004	+1.820	+0.046	+0.005	+0.328	45.22	+5.68
28	Boss 412.....	20	1 46 15.45	+0.011	+1.790	+0.060	+0.019	-0.322	20.77	+5.56
29	γ Andromedæ.....	20	1 58 31.67	-0.005	+1.840	+0.047	-0.007	+0.294	37.59	+5.59
November 7, Mg.										
30	6 Persei.....	20	2 7 47.99	-0.019	+1.820	+0.055	-0.030	-0.091	53.46	+5.54
31	Boss 534.....	20	2 16 18.91	-0.019	+1.770	+0.055	-0.030	-0.354	22.08	+5.50
32	Boss 610.....	20	2 36 43.71	+0.001	+1.830	+0.046	+0.001	+0.366	49.67	+5.55
33	η Persei.....	20	2 44 20.64	-0.005	+1.810	+0.062	-0.009	-0.362	25.88	+5.55
34	Boss 672.....	20	2 53 54.49	-0.014	+1.760	+0.051	-0.020	+0.088	0.26	+5.65
35	Boss 713.....	20	3 3 36.43	-0.009	+1.780	+0.049	-0.013	+0.196	42.23	+5.57
36	α Persei.....	20	3 18 6.11	+0.001	+1.790	+0.054	+0.002	-0.036	11.55	+5.42
37	Boss 817.....	20	3 30 17.64	+0.009	+1.840	+0.052	+0.013	+0.037	23.33	+5.59
38	υ Persei.....	20	3 39 15.71	+0.011	+1.870	+0.048	+0.015	+0.280	21.69	+5.64
39	Boss 900.....	12	3 50 8.07	+0.004	+1.860	+0.055	+0.006	-0.074	13.42	+5.36
40	Boss 938.....	20	4 0 5.79	-0.001	+1.780	+0.055	-0.002	-0.071	11.33	+5.56
41	Boss 970.....	20	4 8 56.80	0.000	+1.780	+0.046	0.000	+0.338	2.78	+5.60
November 8, Mg.										
42	ι Andromedæ.....	20	23 33 48.92	+0.069	+1.830	+0.048	+0.093	+0.256	54.94	+5.62
43	Boss 6148.....	20	23 52 42.88	+0.074	+1.840	+0.061	+0.129	-0.350	48.30	+5.58
44	β Cassiopeia.....	16	0 4 30.03	+0.065	+1.790	+0.067	+0.123	-0.591	35.16	+5.53
45	Boss 43.....	20	0 12 29.76	+0.062	+1.780	+0.044	+0.078	+0.427	35.98	+5.67
46	Boss 82.....	20	0 23 30.47	+0.080	+1.860	+0.049	+0.110	+0.223	36.45	+5.60
47	α Cassiopeia.....	20	0 35 32.24	+0.088	+1.930	+0.063	+0.156	-0.444	37.61	+5.60
48	32 ¹ H. Camelopardalis s.p.	24	0 47 56.92	+0.072	+1.870	+0.131	-0.366	.....	17.20	....
49	μ Cassiopeia.....	20	1 2 27.47	+0.059	+1.810	+0.060	+0.101	-0.308	32.92	+5.60
50	Boss 298.....	20	1 14 35.21	+0.066	+1.830	+0.066	+0.122	-0.531	40.51	+5.64
51	Boss 412.....	20	1 46 15.29	+0.076	+1.770	+0.060	+0.131	-0.319	20.77	+5.61
52	γ Andromedæ.....	20	1 58 31.43	+0.083	+1.770	+0.047	+0.111	+0.283	37.60	+5.73
November 8, H.										
53	6 Persei.....	20	2 7 47.70	+0.061	+1.830	+0.055	+0.096	-0.092	53.46	+5.70
54	Boss 610.....	20	2 36 43.56	+0.031	+1.830	+0.046	+0.040	+0.366	49.68	+5.67

* Azimuth adjusted.

TABLE IX.—Observations for Clock Corrections—Continued.

PARIS I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi- muth.	Contact.	Level.	Azi- muth.		
November 11, H.										
1	Boss 5975.....	20	h m s 23 8 30.53	—0.022	+1.830	+0.053	—0.033	0.000	36.24	+5.69
2	Boss 6049.....	20	23 26 57.38	—0.029	+1.880	+0.046	—0.037	+0.414	3.45	+5.65
3	ψ Andromedæ.....	20	23 41 40.34	—0.029	+1.940	+0.050	—0.042	+0.136	46.19	+5.71
4	Boss 6148.....	20	23 52 42.94	—0.047	+1.910	+0.061	—0.082	—0.363	48.24	+5.68
5	β Cassiopeïæ.....	20	0 4 30.30	—0.131	+1.940	+0.067	—0.248	—0.640	35.10	+5.62
6	Boss 82.....	20	0 23 30.64	—0.190	+2.060	+0.049	—0.262	+0.247	36.42	+5.75
7	α Cassiopeïæ.....	20	0 35 32.62	—0.169	+2.060	+0.063	—0.299	—0.474	37.58	+5.67
8	32 ² H.Camelopardalis s.p.	28	0 48 1.92	—0.154	+2.030	+0.131	+0.782	.....	24.91	.....
9	Boss 298.....	18	1 14 35.60	—0.150	+2.010	+0.066	—0.278	—0.583	40.48	+5.68
10	ν Andromedæ.....	20	1 31 39.35	—0.146	+2.020	+0.046	—0.191	+0.364	45.22	+5.65
11	Boss 412.....	20	1 46 15.54	—0.140	+2.020	+0.060	—0.241	—0.364	20.77	+5.77
12	γ Andromedæ.....	20	1 58 31.68	—0.133	+2.040	+0.047	—0.178	+0.326	37.61	+5.73
13	δ Persei.....	20	2 7 48.14	—0.127	+2.060	+0.055	—0.199	—0.103	53.48	+5.59
November 11, Mg.										
14	Boss 552.....	20	2 22 0.70	—0.151	+2.170	+0.055	—0.236	—0.087	6.03	+5.60
15	Boss 610.....	20	2 36 43.83	—0.135	+2.050	+0.046	—0.174	+0.410	49.71	+5.60
16	η Persei.....	20	2 44 20.76	—0.104	+1.990	+0.062	—0.182	—0.398	25.93	+5.67
17	Boss 672.....	20	2 53 54.65	—0.099	+1.970	+0.051	—0.145	+0.098	0.31	+5.66
18	Boss 713.....	20	3 3 36.48	—0.097	+2.030	+0.049	—0.136	+0.223	42.29	+5.67
19	Boss 740.....	20	3 11 54.98	—0.114	+2.080	+0.048	—0.156	+0.250	0.74	+5.62
20	α Persei.....	20	3 18 6.16	—0.117	+2.010	+0.054	—0.180	—0.040	11.63	+5.64
21	Boss 817.....	20	3 30 17.76	—0.117	+2.010	+0.052	—0.174	+0.040	23.40	+5.72
22	ν Persei.....	20	3 39 15.85	—0.109	+2.140	+0.048	—0.147	+0.321	21.76	+5.69
23	Boss 900.....	20	3 50 7.99	—0.100	+2.040	+0.055	—0.157	—0.082	13.49	+5.68
24	Boss 938.....	18	4 0 6.00	—0.084	+1.970	+0.055	—0.146	—0.079	11.42	+5.59
November 16, Mg.										
25	Boss 82.....	20	0 23 30.78	—0.082	+0.370*	+0.049	—0.113	+0.044	36.38	+5.62
26	32 ² H.Camelopardalis s.p.	32	0 48 17.74	—0.069	+0.230	+0.131	+0.351	.....	25.50	.....
27	μ Cassiopeïæ.....	20	1 2 27.26	—0.072	+0.130	+0.060	—0.123	—0.022	32.87	+5.69
28	Boss 298.....	20	1 14 34.71	—0.097	+0.140	+0.066	—0.179	—0.041	40.46	+5.90
29	Boss 321.....	20	1 22 25.25	—0.107	+0.220	+0.049	—0.151	+0.022	30.82	+5.65
30	ν Andromedæ.....	20	1 31 39.49	—0.097	+0.320	+0.046	—0.127	+0.058	45.22	+5.75
31	Boss 412.....	20	1 46 15.09	—0.091	+0.290	+0.060	—0.157	—0.052	20.78	+5.84
32	γ Andromedæ.....	20	1 58 31.87	—0.098	+0.250	+0.047	—0.131	+0.040	37.63	+5.80
33	Boss 534.....	20	2 16 16.35	—0.090	+0.210	+0.062	—0.158	—0.042	22.14	+5.93
34	Boss 610.....	20	2 36 44.08	—0.083	+0.170	+0.046	—0.107	+0.034	49.76	+5.71
November 19, H.										
35	ψ Andromedæ.....	20	23 41 40.10	—0.035	+0.290	+0.045	—0.050	+0.020	46.06	+5.94
36	Boss 6148.....	20	23 52 42.15	—0.018	+0.250	+0.054	—0.031	—0.048	48.11	+5.98
37	β Cassiopeïæ.....	20	0 4 29.14	+0.005	+0.220	+0.060	+0.009	—0.073	34.94	+5.80
38	Boss 43.....	20	0 12 29.98	+0.001	+0.310	+0.039	+0.001	+0.074	35.89	+5.80
39	Boss 82.....	20	0 23 30.34	+0.008	+0.270	+0.043	+0.011	+0.032	36.36	+5.93
40	α Cassiopeïæ.....	10	0 35 31.58	+0.012	+0.190	+0.055	+0.021	—0.044	37.47	+5.88
41	32 ² H.Camelopardalis s.p.	28	0 48 18.08	+0.006	+0.210	+0.131	—0.030	.....	25.91	.....
42	μ Cassiopeïæ.....	20	1 2 27.06	—0.006	+0.220	+0.053	—0.010	—0.037	32.84	+5.77
43	Boss 298.....	20	1 14 34.46	—0.012	+0.220	+0.058	—0.022	—0.064	40.44	+6.01
44	Boss 321.....	20	1 22 24.98	—0.012	+0.250	+0.044	—0.017	+0.025	30.82	+5.79
45	ν Andromedæ.....	20	1 31 39.29	—0.015	+0.250	+0.041	—0.020	+0.045	45.21	+5.86
46	Boss 412.....	20	1 46 14.82	—0.005	+0.260	+0.053	—0.009	—0.047	20.78	+5.96
47	γ Andromedæ.....	20	1 58 31.76	+0.004	+0.250	+0.042	+0.005	+0.040	37.63	+5.78
48	Boss 534.....	20	2 16 16.22	—0.005	+0.180	+0.055	—0.009	—0.036	22.16	+5.93
49	Boss 610.....	20	2 36 43.91	—0.010	+0.170	+0.041	—0.013	+0.034	49.79	+5.82
50	η Persei.....	20	2 44 20.20	—0.019	+0.210	+0.055	—0.033	—0.042	26.00	+5.82
November 19, Mg.										
51	Boss 672.....	20	2 53 54.47	—0.026	+0.260	+0.045	—0.038	+0.013	0.42	+5.93
52	Boss 713.....	20	3 3 36.56	—0.014	+0.250	+0.043	—0.020	+0.028	42.41	+5.80
53	Boss 740.....	20	3 11 54.98	—0.021	+0.110	+0.043	—0.029	+0.014	0.86	+5.85
54	α Persei.....	20	3 18 5.89	—0.033	+0.030	+0.048	—0.051	—0.001	11.74	+5.85
55	Boss 817.....	20	3 30 17.60	—0.016	+0.100	+0.046	—0.024	+0.002	23.55	+5.93
56	ν Persei.....	20	3 39 15.96	—0.011	+0.170	+0.042	—0.015	+0.026	21.90	+5.89
57	Boss 900.....	20	3 50 7.82	—0.009	+0.140	+0.049	—0.014	—0.006	13.68	+5.83

* Azimuth adjusted.

TABLE IX.—*Observations for Clock Corrections—Continued.*

PARIS I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
1	Groombridge 750.....	32	^h 4 ^m 9 ^s 16.41	+0.001	+0.070	-0.172	+0.008	.....	21.44	.....
2	Boss 1074.....	20	4 30 38.97	0.000	+0.060	+0.041	0.000	+0.011	44.90	+5.88
3	4 Camelopardalis.....	20	4 40 45.77	+0.003	+0.070	+0.056	+0.005	-0.017	51.66	+5.85
4	ε Ursæ Minoris s. p.	20	4 54 30.24	-0.004	+0.030	+0.103	+0.015	.....	36.46	.....
5	Boss 1311.....	20	5 21 51.92	-0.014	+0.070	+0.038	-0.017	+0.021	57.85	+5.89
6	Boss 1348.....	14	5 29 27.28	-0.001	+0.010	+0.053	-0.002	-0.002	33.22	+5.89
November 29, H.										
7	α Cassiopeiæ.....	20	0 35 31.26	+0.037	+0.260	+0.070	+0.065	-0.060	37.29	+5.95
8	Boss 175.....	20	0 44 58.06	+0.023	+0.220	+0.051	+0.030	+0.040	4.24	+6.06
9	43 H. Cephei.....	28	0 56 45.30	+0.010	+0.200	-0.191	+0.093	.....	49.41	.....
10	Boss 298.....	20	1 14 34.18	-0.019	+0.200	+0.073	+0.035	-0.058	40.33	+6.10
11	Boss 321.....	20	1 22 24.66	-0.012	+0.210	+0.055	+0.017	+0.021	30.77	+6.02
12	ν Andromedæ.....	20	1 31 39.05	-0.009	+0.210	+0.051	-0.012	+0.038	45.17	+6.03
13	Boss 412.....	20	1 46 14.56	+0.009	+0.170	+0.067	+0.015	-0.031	20.73	+6.12
14	γ Andromedæ.....	20	1 58 31.47	+0.037	+0.170	+0.053	+0.050	+0.027	37.61	+6.01
15	4 Ursæ Minoris s. p.	20	2 9 0.06	+0.033	+0.200	+0.067	-0.071	.....	6.97	.....
16	Boss 552.....	20	2 21 59.99	+0.022	+0.200	+0.061	+0.034	-0.008	6.12	+6.04
17	Boss 610.....	20	2 36 43.66	+0.030	+0.240	+0.051	+0.039	+0.048	49.84	+6.04
18	47 H. Cephei.....	18	2 54 34.54	+0.006	+0.190	-0.074	+0.024	.....	39.84	.....
November 29, Mg.										
19	Boss 713.....	8	3 3 36.39	-0.025	+0.110	+0.055	-0.035	+0.012	42.49	+6.07
20	α Persei.....	20	3 18 5.73	-0.012	0.000	+0.060	+0.018	0.000	11.83	+6.02
21	Boss 817.....	20	3 30 17.47	-0.007	+0.060	+0.058	-0.010	+0.001	23.68	+6.16
22	ν Persei.....	20	3 39 15.81	+0.008	+0.170	+0.053	+0.011	+0.026	22.02	+6.12
23	Boss 900.....	20	3 50 7.65	+0.009	+0.140	+0.061	+0.014	-0.006	13.84	+6.12
24	Groombridge 750.....	32	4 9 16.80	+0.027	+0.070	-0.172	+0.229	.....	22.25	.....
December 8, Mg.										
25	ζ Cephei.....	10	22 7 44.36	+0.018	+0.300	+0.073	+0.033	-0.087	50.60	+6.22
26	30 H. Camelopardalis s. p.	28	22 20 41.37	+0.019	+0.130	+0.115	-0.082	.....	48.46	.....
27	Boss 5887.....	20	22 46 5.80	+0.019	+0.140	+0.069	+0.033	-0.028	12.05	+6.18
28	o Andromedæ.....	20	22 57 50.70	+0.007	+0.220	+0.053	+0.009	+0.035	57.02	+6.22
29	Boss 5975.....	20	23 8 29.40	-0.004	+0.210	+0.059	+0.006	0.000	35.66	+6.20
30	β Cassiopeiæ.....	20	0 4 28.18	+0.011	+0.310	+0.075	+0.021	-0.102	34.47	+6.30
31	Boss 43.....	18	0 12 29.27	-0.006	+0.160	+0.050	-0.008	+0.038	35.63	+6.28
32	α Cassiopeiæ.....	20	0 35 30.72	+0.011	+0.170	+0.070	+0.019	-0.039	37.10	+6.33
33	Boss 175.....	20	0 44 57.79	+0.025	+0.170	+0.051	+0.032	+0.031	4.11	+6.21
34	43 H. Cephei.....	36	0 56 42.11	+0.007	+0.200	-0.191	+0.065	.....	47.33	.....
35	Boss 298.....	20	1 14 33.58	0.000	+0.160	+0.073	0.000	-0.046	40.14	[+6.53]
36	Boss 321.....	20	1 22 24.22	+0.012	+0.120	+0.055	+0.017	+0.012	30.65	+6.35
37	Boss 412.....	20	1 46 14.13	+0.016	+0.220	+0.067	+0.028	-0.040	20.60	+6.41
38	γ Andromedæ.....	20	1 58 31.13	+0.016	+0.210	+0.053	+0.021	+0.034	37.57	+6.33
39	4 Ursæ Minoris s. p.	28	2 9 0.86	+0.012	+0.190	+0.067	-0.026	.....	7.52	.....
40	Boss 552.....	20	2 21 59.74	+0.005	+0.150	+0.061	+0.008	-0.006	6.05	+6.25
41	Boss 610.....	20	2 36 43.43	+0.007	+0.230	+0.051	+0.009	+0.046	49.80	+6.26
42	η Persei.....	20	2 44 19.66	+0.022	+0.200	+0.069	+0.038	-0.040	26.02	+6.29
43	47 H. Cephei.....	32	2 54 34.04	+0.024	+0.090	-0.074	+0.097	.....	39.65	.....
44	α Persei.....	20	3 18 5.43	+0.014	+0.050	+0.060	+0.022	-0.001	11.87	+6.36
45	Boss 817.....	20	3 30 17.24	+0.021	+0.100	+0.058	+0.031	+0.002	23.70	+6.37
December 8, H.										
46	Boss 1074.....	20	4 30 38.75	+0.039	+0.200	+0.051	+0.051	+0.036	45.20	+6.31
47	4 Camelopardalis.....	20	4 40 45.45	+0.021	+0.200	+0.071	+0.038	-0.048	52.09	[+6.70]
48	ε Ursæ Minoris s. p.	36	4 54 27.91	+0.021	+0.240	+0.103	-0.080	.....	35.61	.....
December 13, H.										
49	ζ Cephei.....	20	22 7 44.13	+0.006	+0.320	+0.073	+0.011	-0.093	50.43	[+6.30]
50	30 H. Camelopardalis s. p.	20	22 20 40.50	+0.001	+0.320	+0.115	-0.004	.....	49.39	.....
51	10 Lacertæ.....	20	22 35 16.61	+0.008	+0.360	+0.050	+0.010	+0.083	23.18	+6.43
52	Boss 5975.....	20	23 8 28.95	+0.019	+0.390	+0.059	+0.029	0.000	35.55	+6.51
53	ι Andromedæ.....	20	23 33 47.76	+0.026	+0.390	+0.053	+0.035	+0.055	54.37	+6.47
54	Boss 6148.....	20	23 52 40.91	+0.036	+0.330	+0.068	+0.063	-0.063	47.51	+6.53
55	β Cassiopeiæ.....	20	0 4 27.68	+0.032	+0.370	+0.075	+0.060	-0.122	34.33	+6.64
56	Boss 43.....	20	0 12 28.86	+0.023	+0.360	+0.050	+0.029	+0.086	35.56	+6.54

TABLE IX.—Observations for Clock Corrections—Continued.

PARIS I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
1	Boss 82.....	20	^h 0 ^m 23 ^s 29.31	+0.034	+0.330	+0.054	+0.047	+0.040	36.00	+6.55
2	α Cassiopeia.....	20	0 35 30.38	+0.036	+0.310	+0.070	+0.064	+0.071	36.99	+6.55
3	Boss 175.....	20	0 44 57.43	+0.041	+0.350	+0.051	+0.053	+0.063	4.01	+6.41
4	43 H. Cephei.....	20	0 56 40.22	+0.041	+0.360	+0.191	+0.383	.....	46.32	.....
5	γ Andromeda.....	20	1 58 30.91	+0.057	+0.210	+0.053	+0.076	+0.034	37.54	+6.47
6	4 Ursæ Minoris s. p.	32	2 9 0.81	+0.056	+0.170	+0.067	+0.121	.....	7.89	.....
7	Boss 610.....	20	2 36 43.17	+0.054	+0.130	+0.051	+0.070	+0.026	49.78	+6.46
8	Boss 672.....	20	2 53 53.68	+0.059	+0.170	+0.057	+0.086	+0.008	0.44	+6.61
9	48 H. Cephei.....	32	3 9 18.91	+0.066	+0.160	+0.064	+0.237	.....	25.23	.....
December 13, Mg.										
10	Boss 817.....	20	3 30 17.05	+0.044	+0.160	+0.058	+0.066	+0.003	23.71	+6.53
11	ν Persei.....	20	3 39 15.37	+0.026	+0.120	+0.053	+0.035	+0.018	22.11	+6.63
12	Boss 900.....	20	3 50 7.35	+0.026	+0.050	+0.061	+0.041	+0.001	13.90	+6.45
13	Boss 938.....	20	4 0 5.25	+0.034	+0.090	+0.061	+0.053	+0.004	11.90	+6.54
14	Boss 970.....	20	4 8 56.70	+0.036	+0.180	+0.051	+0.047	+0.034	3.32	+6.49
15	Boss 1003.....	20	4 15 14.67	+0.025	+0.220	+0.057	+0.036	+0.013	21.27	+6.49
16	Boss 1074.....	20	4 30 38.62	+0.021	+0.220	+0.051	+0.028	+0.040	45.25	+6.51
17	4 Camelopardalis.....	20	4 40 45.61	+0.016	+0.180	+0.071	+0.029	+0.043	52.17	+6.50
18	ε Ursæ Minoris s. p.	28	4 54 28.58	+0.026	+0.080	+0.103	+0.099	.....	35.48	.....
19	Boss 1222.....	20	5 4 13.70	+0.034	+0.080	+0.057	+0.050	+0.004	20.31	+6.50
20	λ Aurigæ.....	20	5 13 0.41	+0.026	+0.120	+0.051	+0.034	+0.023	7.06	+6.54
21	Boss 1311.....	20	5 21 51.57	+0.025	+0.120	+0.048	+0.030	+0.036	58.33	+6.65
22	Boss 1348.....	20	5 29 27.16	+0.019	+0.110	+0.067	+0.032	+0.019	33.84	+6.60
23	ο Aurigæ.....	20	5 39 9.67	+0.025	+0.060	+0.060	+0.039	+0.001	16.27	+6.50
24	Boss 1452.....	20	5 47 11.57	+0.039	+0.070	+0.078	+0.076	+0.027	18.27	+6.57
25	δ Ursæ Minoris s. p.	24	5 59 28.59	+0.034	+0.090	+0.237	+0.335	.....	37.02	.....
26	Boss 1608.....	20	6 19 14.52	+0.022	+0.090	+0.074	+0.041	+0.029	21.15	+6.54
27	51 Aurigæ.....	20	6 32 37.16	+0.025	+0.130	+0.057	+0.032	+0.027	43.82	+6.54
28	ψ Aurigæ.....	20	6 40 27.82	+0.024	+0.190	+0.054	+0.033	+0.023	34.45	+6.52
29	15 Lyncis.....	20	6 49 46.08	+0.001	+0.150	+0.074	+0.002	+0.048	52.77	+6.67
30	51 H. Cephei.....	20	7 0 59.44	+0.019	+0.130	+0.285	+0.258	.....	5.38	.....
December 19, H.										
31	Boss 5975.....	20	23 8 28.84	+0.004	+0.200	+0.059	+0.006	0.000	35.43	+6.53
32	β Cassiopeia.....	20	0 4 27.35	+0.003	+0.130	+0.075	+0.006	+0.043	34.15	+6.68
33	Boss 43.....	20	0 12 28.94	+0.010	+0.090	+0.050	+0.012	+0.022	35.47	+6.49
34	α Cassiopeia.....	10	0 35 30.21	+0.009	+0.010	+0.070	+0.016	+0.002	36.84	+6.54
35	43 H. Cephei.....	24	0 56 36.93	+0.014	+0.020	+0.191	+0.131	.....	44.66	.....
36	Boss 610.....	20	2 36 43.25	+0.008	+0.010	+0.051	+0.010	+0.002	49.75	+6.44
December 19, Mg.										
37	Boss 938.....	18	4 0 5.28	+0.016	0.000	+0.061	+0.025	0.000	11.93	+6.56
38	Boss 1003.....	20	4 15 14.66	+0.011	+0.080	+0.057	+0.016	+0.005	21.32	+6.58
39	Boss 1074.....	20	4 30 38.62	+0.018	+0.060	+0.051	+0.024	+0.011	45.31	+6.60
40	4 Camelopardalis.....	20	4 40 45.50	+0.001	+0.010	+0.071	+0.002	+0.002	52.23	+6.66
41	ε Ursæ Minoris s. p.	32	4 54 29.41	0.000	+0.060	+0.103	0.000	.....	35.52	.....
42	λ Aurigæ.....	20	5 13 0.50	+0.007	+0.040	+0.051	+0.009	+0.008	7.13	+6.58
43	Boss 1311.....	20	5 21 51.82	0.000	+0.020	+0.048	0.000	+0.006	58.42	+6.56
44	Boss 1348.....	20	5 29 27.18	+0.004	+0.100	+0.067	+0.007	+0.017	33.97	+6.71
45	ο Aurigæ.....	14	5 39 9.83	+0.007	+0.120	+0.060	+0.011	+0.004	16.38	+6.50
46	δ Ursæ Minoris s. p.	32	5 59 28.62	+0.012	+0.040	+0.237	+0.118	.....	36.25	.....
47	Boss 1552.....	18	6 7 53.47	+0.006	+0.030	+0.078	+0.012	+0.012	0.03	+6.46
48	51 Aurigæ.....	20	6 32 37.38	+0.001	+0.050	+0.051	+0.001	+0.010	43.95	+6.53
49	ψ Aurigæ.....	20	6 40 28.00	+0.012	+0.020	+0.054	+0.017	+0.002	34.60	+6.56
50	15 Lyncis.....	20	6 49 46.30	0.000	+0.020	+0.074	0.000	+0.006	52.97	+6.60
51	51 H. Cephei.....	28	7 0 59.56	+0.008	+0.060	+0.285	+0.108	.....	7.20	.....
December 20, Mg.										
52	Boss 5887.....	20	22 46 5.16	+0.019	+0.060	+0.069	+0.033	+0.012	11.70	+6.45
53	ο Andromeda.....	20	22 57 50.17	+0.016	+0.040	+0.053	+0.021	+0.006	56.81	+6.56
54	Boss 5975.....	20	23 8 28.72	+0.016	+0.050	+0.059	+0.024	0.000	35.41	+6.61
55	39 H. Cephei.....	20	23 27 26.76	+0.001	+0.110	+0.254	+0.012	.....	33.34	.....
56	ψ Andromeda.....	20	23 41 38.78	+0.002	+0.100	+0.056	+0.003	+0.007	45.49	+6.64
57	Boss 6148.....	20	23 52 40.66	+0.009	+0.100	+0.068	+0.016	+0.019	47.33	+6.61

TABLE IX.—Observations for Clock Corrections—Continued.

PARIS I, 1913—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
1	β Cassiopeiae.....	20	h m s 0 4 27.43	+0.002	+0.050	+0.075	+0.004	-0.016	34.12	+6.63
2	Boss 43.....	20	0 12 28.72	+0.002	+0.050	+0.050	+0.002	+0.012	35.46	+6.68
3	Boss 82.....	20	0 23 29.20	+0.011	+0.100	+0.054	+0.015	+0.012	35.88	+6.60
4	α Cassiopeiae.....	20	0 35 30.10	-0.001	+0.090	+0.070	-0.002	-0.021	36.82	+6.67
5	Boss 175.....	20	0 44 57.26	-0.004	+0.090	+0.051	-0.005	+0.016	3.84	+6.52
6	43 H. Cephei.....	28	0 56 38.35	+0.001	+0.110	-0.191	+0.009	.....	44.38	.....
7	Boss 298.....	20	1 14 33.14	0.000	+0.030	+0.073	0.000	-0.009	39.88	+6.68
8	Boss 321.....	20	1 22 23.84	0.000	+0.040	+0.055	0.000	+0.004	30.49	+6.59
9	ν Andromedæ.....	20	1 31 38.29	-0.001	+0.080	+0.051	-0.001	+0.014	44.97	+6.62
10	Boss 412.....	20	1 46 13.75	+0.001	+0.080	+0.067	+0.002	-0.014	20.42	+6.61
11	γ Andromedæ.....	20	1 58 30.83	-0.001	+0.070	+0.053	-0.001	+0.011	37.47	+6.58
12	Boss 534.....	20	2 16 15.27	-0.013	+0.040	+0.069	-0.023	-0.008	21.92	+6.61
13	Boss 552.....	10	2 21 59.30	-0.002	+0.060	+0.061	-0.003	-0.002	5.95	+6.59
14	Boss 610.....	20	2 36 43.12	-0.002	+0.100	+0.051	-0.003	+0.020	49.75	+6.56
15	η Persei.....	20	2 44 19.22	+0.001	+0.080	+0.069	+0.002	-0.016	25.94	+6.66
16	47 H. Cephei.....	32	2 54 33.15	-0.001	+0.040	-0.074	-0.004	.....	39.17	.....
17	Boss 713.....	20	3 3 35.76	+0.001	+0.020	+0.055	+0.001	+0.002	42.46	+6.64
18	Boss 740.....	20	3 12 54.32	-0.007	+0.060	+0.054	-0.009	+0.007	0.95	+6.58
19	α Persei.....	20	3 18 5.18	-0.004	+0.080	+0.060	-0.006	-0.002	11.86	+6.63
20	Boss 817.....	20	3 30 16.99	+0.001	+0.080	+0.058	+0.001	+0.002	23.72	+6.67
21	ν Persei.....	20	3 39 15.42	0.000	+0.070	+0.053	0.000	+0.010	22.12	+6.64
December 20, H.										
22	Boss 938.....	20	4 0 5.19	+0.009	-0.010	+0.061	+0.014	0.000	11.94	+6.67
23	Groombridge 750.....	20	4 9 17.18	+0.011	-0.010	-0.172	+0.093	.....	22.24	.....
24	Boss 1074.....	20	4 30 38.56	+0.009	+0.020	+0.051	+0.012	+0.004	45.32	+6.69
25	4 Camelopardalis.....	20	4 40 45.61	+0.004	+0.030	+0.071	+0.007	-0.007	52.23	+6.55
26	λ Aurigæ.....	20	5 13 0.53	+0.004	-0.010	+0.051	+0.005	-0.002	7.14	+6.56
27	Boss 1311.....	20	5 21 51.71	+0.004	-0.010	+0.048	+0.005	-0.003	58.44	+6.68
28	Boss 1348.....	20	5 29 27.31	+0.002	-0.010	+0.067	+0.003	+0.002	33.99	+6.61
29	ϕ Aurigæ.....	20	5 39 9.62	+0.001	-0.050	+0.060	+0.002	+0.002	16.40	+6.72
30	Boss 1452.....	20	5 47 11.65	+0.003	-0.050	+0.078	+0.006	+0.019	18.45	+6.70
31	δ Ursæ Minoris s. p.....	20	5 59 28.06	+0.014	-0.010	+0.237	-0.138	.....	36.21	.....
32	Boss 1608.....	20	6 19 14.56	+0.019	-0.020	+0.074	+0.036	+0.006	21.37	+6.69
33	51 Aurigæ.....	8	6 32 37.24	+0.019	-0.010	+0.051	+0.024	-0.002	43.97	+6.66
34	ψ Aurigæ.....	18	6 40 27.90	+0.020	+0.030	+0.054	+0.028	+0.004	34.62	+6.63
35	51 H. Cephei.....	24	7 0 59.61	+0.017	-0.010	-0.285	+0.231	.....	7.39	.....
December 23, H.										
36	Boss 175.....	20	0 44 57.06	+0.035	+0.080	+0.051	+0.046	+0.014	3.90	+6.73
37	43 H. Cephei.....	24	0 56 36.31	+0.023	+0.040	-0.191	+0.215	.....	43.69	.....
38	γ Andromedæ.....	20	1 58 30.68	+0.031	+0.050	+0.053	+0.042	+0.008	37.43	+6.65
39	Boss 1222.....	20	5 4 13.65	+0.020	+0.040	+0.057	+0.029	+0.002	20.46	+6.72
40										
41	December 23, Mg.									
42	Boss 1311.....	20	5 21 51.73	+0.029	+0.120	+0.048	+0.034	+0.036	58.48	+6.63
43	Boss 1452.....	20	5 47 11.71	+0.024	0.000	+0.078	+0.047	0.000	18.50	+6.67
44	Boss 1608.....	20	6 19 14.58	+0.029	+0.030	+0.074	+0.055	-0.010	21.44	+6.74
45	ψ Aurigæ.....	20	6 40 27.82	+0.029	+0.090	+0.054	+0.040	+0.011	34.69	+6.77
46	15 Lyncis.....	20	6 49 46.20	+0.029	+0.080	+0.074	+0.055	-0.026	53.10	+6.80
47	51 H. Cephei.....	24	7 1 0.65	+0.021	0.000	-0.285	+0.285	.....	7.94	.....
48	25 H. Camelopardalis.....	8	7 13 7.96	+0.026	-0.020	-0.108	+0.146	.....	15.22	.....
49	24 Lyncis.....	20	7 35 40.40	+0.026	-0.040	+0.076	+0.050	+0.014	47.32	+6.78
December 31, H.										
50	Boss 321.....	20	1 22 23.31	+0.014	-0.010	+0.055	+0.020	-0.001	30.33	+6.95
51	ν Andromedæ.....	20	1 31 37.77	+0.011	-0.010	+0.051	+0.014	-0.002	44.81	+6.98
52	Boss 412.....	20	1 46 12.99	+0.015	-0.050	+0.067	+0.026	+0.009	20.22	+7.13
53	γ Andromedæ.....	20	1 58 30.28	+0.019	-0.050	+0.053	+0.025	-0.008	37.33	+6.98
54	4 Ursæ Minoris s. p.....	20	2 9 2.55	+0.021	+0.010	+0.067	-0.045	.....	9.48	.....
55	Boss 610.....	20	2 36 42.68	+0.005	-0.090	+0.051	+0.006	-0.018	49.67	+6.95
56	η Persei.....	20	2 44 18.53	+0.014	-0.090	+0.069	+0.024	+0.018	25.78	+7.14
57	47 H. Cephei.....	20	2 54 31.73	+0.011	-0.090	-0.074	+0.044	.....	38.54	.....
58	Boss 713.....	20	3 3 35.15	+0.023	-0.080	+0.055	+0.032	-0.009	42.39	+7.16
59	Boss 740.....	20	3 11 53.88	+0.011	-0.050	+0.054	+0.015	-0.006	10.90	+6.96

TABLE IX.—Observations for Clock Corrections—Continued.

PARIS II, 1914.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
January 21, M.										
1	Boss 1608.....	18	h m s 6 19 15.04	-0.072	+1.033	+0.052	-0.136	-0.330	21.74	+7.11
2	51 Aurigæ.....	20	6 32 37.16	-0.076	+1.008	+0.035	-0.097	+0.213	44.36	+7.05
3	ψ Aurigæ.....	16	6 40 27.91	-0.052	+0.973	+0.037	-0.072	+0.122	35.06	+7.06
January 21, L.										
4	15 Lyncis.....	10	6 49 46.76	-0.029	+1.013	+0.052	-0.055	-0.327	53.52	+7.09
5	51 H. Cephei.....	18	7 1 15.60	-0.033	+0.997	+0.551	-0.528	.....	10.78	.....
6	Boss 1897.....	20	7 14 59.77	-0.037	+0.965	+0.038	-0.053	+0.083	6.87	+7.03
7	24 Lyncis.....	20	7 35 41.27	-0.043	+0.961	+0.052	-0.082	-0.326	48.03	+7.12
8	26 Lyncis.....	20	7 48 23.25	-0.052	+0.997	+0.040	-0.077	+0.027	30.23	+6.99
9	27 Lyncis.....	20	8 1 56.01	-0.049	+1.013	+0.044	-0.079	-0.083	2.90	+7.01
10	31 Lyncis.....	20	8 16 52.90	-0.043	+0.984	+0.037	-0.059	+0.127	59.96	+6.96
11	Groombridge 1450....	20	8 27 15.27	-0.046	+1.005	+0.034	-0.058	+0.234	22.33	+6.85
12	76 Draconis s. p.....	24	8 48 27.08	-0.056	+1.027	+0.406	+0.271	.....	40.08	.....
13	Boss 2423.....	20	8 57 39.54	-0.064	+0.987	+0.047	-0.110	-0.172	46.31	+7.01
14	Boss 2465.....	6	9 8 6.78	-0.059	+0.960	+0.037	-0.081	+0.122	13.82	+6.96
15	40 Lyncis.....	20	9 15 44.37	-0.050	+0.953	+0.033	-0.059	+0.282	51.61	+6.98
16	1 H. Draconis.....	26	9 25 4.82	-0.044	+0.947	+0.187	-0.256	.....	8.35	.....
17	Boss 2601.....	14	9 36 36.45	-0.058	+0.953	+0.035	-0.075	+0.189	43.46	+6.86
18	υ Ursæ Majoris.....	12	9 44 50.39	-0.068	+0.953	+0.053	-0.131	-0.345	56.98	+7.01
19	Boss 2673.....	16	9 53 53.98	-0.062	+0.959	+0.050	-0.113	-0.258	0.63	+6.97
January 22, L.										
20	Boss 938.....	20	4 0 4.75	-0.034	+0.255*	+0.042	-0.053	-0.009	11.68	+6.95
21	Boss 970.....	20	4 8 56.19	-0.051	+0.272	+0.035	-0.066	+0.053	3.23	+7.02
22	Boss 1003.....	20	4 15 14.23	-0.051	+0.317	+0.039	-0.073	+0.020	21.16	+6.94
23	Boss 1074.....	20	4 30 38.27	-0.058	+0.307	+0.036	-0.076	+0.055	45.24	+6.94
24	4 Camelopardalis.....	20	4 40 45.20	-0.070	+0.269	+0.049	-0.126	-0.066	52.08	+7.02
25	ε Ursæ Minoris s. p.....	26	4 54 28.64	-0.066	+0.261	+0.404	+0.318	.....	37.67	.....
26	Boss 1222.....	20	5 4 13.51	-0.070	+0.277	+0.039	-0.102	+0.014	20.44	+6.98
27	λ Aurigæ.....	20	5 13 0.23	-0.072	+0.266	+0.035	-0.093	+0.053	7.23	+7.00
28	Boss 1311.....	12	5 21 51.50	-0.073	+0.273	+0.033	-0.086	+0.082	58.55	+7.02
29	Boss 1348.....	20	5 29 27.13	-0.066	+0.277	+0.046	-0.113	-0.046	34.10	+7.08
30	ο Aurigæ.....	20	5 39 9.61	-0.064	+0.257	+0.042	-0.099	-0.007	16.57	+7.02
31	Boss 1452.....	20	5 47 11.58	-0.063	+0.243	+0.054	-0.123	-0.093	18.64	+7.22
32	Boss 1498.....	20	5 57 1.19	-0.063	+0.294	+0.037	-0.086	+0.041	8.20	+7.02
33	Boss 1552.....	20	6 7 53.41	-0.060	+0.315	+0.054	-0.118	-0.122	0.37	+7.15
34	Boss 1608.....	20	6 19 14.79	-0.051	+0.281	+0.052	-0.096	-0.090	21.75	+7.09
35	51 Aurigæ.....	20	6 32 37.40	-0.068	+0.281	+0.035	-0.087	+0.059	44.36	+6.95
36	ψ Aurigæ.....	20	6 40 28.06	-0.078	+0.278	+0.037	-0.107	+0.034	35.07	+7.05
37	15 Lyncis.....	20	6 49 46.54	-0.080	+0.235	+0.052	-0.151	-0.076	53.52	+7.16
January 22, M.										
38	25 H. Camelopardalis...	22	7 13 10.92	-0.096	+0.221	+0.209	-0.618	.....	16.72	.....
39	Boss 1948.....	20	7 23 20.62	-0.085	+0.167	+0.042	-0.132	-0.005	27.45	+6.93
40	24 Lyncis.....	20	7 35 41.20	-0.072	+0.143	+0.052	-0.137	-0.048	48.04	+6.97
41	26 Lyncis.....	20	7 48 23.37	-0.076	+0.139	+0.040	-0.113	+0.004	30.24	+6.94
42	27 Lyncis.....	20	8 1 56.00	-0.075	+0.085	+0.044	-0.121	-0.007	2.92	+7.00
43	31 Lyncis.....	20	8 16 53.04	-0.071	+0.078	+0.037	-0.097	+0.010	59.98	+6.99
44	Groombridge 1450....	14	8 27 15.46	-0.057	+0.106	+0.034	-0.071	+0.025	22.35	+6.90
45	76 Draconis s. p.....	22	8 48 31.60	-0.071	+0.076	+0.406	+0.344	.....	39.98	.....
46	Boss 2423.....	20	8 57 39.42	-0.072	+0.044	+0.047	-0.124	-0.008	46.34	+7.00
47	Boss 2465.....	20	9 8 6.92	-0.068	+0.036	+0.037	-0.093	+0.005	13.85	+6.98
48	40 Lyncis.....	20	9 15 44.64	-0.071	+0.067	+0.033	-0.084	+0.020	51.63	+7.02
49	1 H. Draconis.....	22	9 25 1.83	-0.070	+0.083	+0.187	-0.408	.....	8.44	.....
50	Boss 2601.....	18	9 36 36.57	-0.077	+0.129	+0.035	-0.099	+0.026	43.49	+6.96
51	υ Ursæ Majoris.....	20	9 44 50.06	-0.085	+0.167	+0.053	-0.164	-0.060	57.01	+7.12
52	Boss 2673.....	20	9 53 53.79	-0.093	+0.128	+0.050	-0.170	-0.034	0.67	+7.03
January 23, M.										
53	ε Ursæ Minoris s. p.....	20	4 54 29.33	-0.043	+0.071	+0.411	+0.207	.....	37.77	.....
54	Boss 1222.....	20	5 4 13.45	-0.069	+0.112	+0.041	-0.101	+0.006	20.44	+7.04
55	λ Aurigæ.....	20	5 13 0.20	-0.081	+0.123	+0.037	-0.104	+0.025	7.22	+7.06
56	Boss 1311.....	20	5 21 51.43	-0.080	+0.080	+0.034	-0.094	+0.025	58.55	+7.16

* Azimuth adjusted.

TABLE IX.—Observations for Clock Corrections—Continued.

PARIS II, 1914—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
			^h ^m ^s	^s	^s	^s	^s	^s	^s	^s
1	Boss 1348.....	20	5 29 27.02	-0.079	+0.079	+0.048	-0.135	-0.013	34.10	+7.18
2	o Aurigæ.....	20	5 39 9.53	-0.092	+0.057	+0.043	-0.143	-0.001	16.56	+7.13
3	Boss 1452.....	20	5 47 11.59	-0.092	+0.025	+0.056	-0.180	-0.010	18.64	+7.18
4	Boss 1498.....	20	5 57 1.15	-0.091	+0.041	+0.038	-0.124	+0.006	8.21	+7.14
5	Boss 1552.....	20	6 7 53.32	-0.095	+0.023	+0.056	-0.186	-0.009	0.37	+7.19
6	Boss 1608.....	20	6 19 14.69	-0.072	+0.003	+0.054	-0.136	-0.001	21.76	+7.14
7	51 Aurigæ.....	20	6 32 37.28	-0.062	+0.033	+0.036	-0.079	+0.007	44.37	+7.13
8	ψ Aurigæ.....	20	6 40 27.88	-0.076	+0.030	+0.039	-0.105	+0.004	35.07	+7.25
9	15 Lyncis.....	20	6 49 46.46	-0.062	+0.013	+0.054	-0.117	-0.004	53.53	+7.14
January 23, L.										
10	Boss 1846.....	20	7 6 37.21	-0.037	-0.004	+0.045	-0.059	0.000	44.38	+7.18
11	25 H. Camelopardalis...	28	7 13 9.86	-0.037	+0.007	+0.217	-0.238	.....	16.72	.....
12	Boss 1948.....	20	7 23 20.44	-0.049	+0.007	+0.043	-0.076	0.000	27.46	+7.06
13	24 Lyncis.....	20	7 35 40.96	-0.038	+0.018	+0.054	-0.072	-0.006	48.05	+7.11
14	26 Lyncis.....	20	7 48 23.22	-0.035	+0.038	+0.042	-0.052	+0.001	30.25	+7.04
15	27 Lyncis.....	20	8 1 55.87	-0.041	+0.051	+0.045	-0.066	-0.004	2.93	+7.08
16	31 Lyncis.....	20	8 16 52.96	-0.050	+0.083	+0.039	-0.069	+0.011	59.99	+7.05
17	Groombridge 1450....	20	8 27 15.35	-0.062	+0.117	+0.036	-0.078	+0.027	22.36	+7.03
18	Boss 2306.....	20	8 35 0.68	-0.067	+0.103	+0.040	-0.097	+0.007	7.76	+7.13
19	76 Draconis s. P.	20	8 48 31.63	-0.062	+0.070	+0.413	+0.301	.....	39.92	.....
20	Boss 2423.....	20	8 57 39.38	-0.049	+0.056	+0.048	-0.084	-0.010	46.38	+7.04
21	Boss 2465.....	20	9 8 6.81	-0.061	+0.075	+0.039	-0.084	+0.010	13.88	+7.11
22	40 Lyncis.....	20	9 15 44.58	-0.065	+0.085	+0.034	-0.077	+0.025	51.65	+7.09
23	1 H. Draconis.....	28	9 25 1.75	-0.054	+0.060	+0.194	-0.314	.....	8.53	.....
24	Boss 2601.....	20	9 36 36.53	-0.051	+0.072	+0.037	-0.066	+0.014	43.52	+7.02
25	υ Ursæ Majoris.....	20	9 44 49.95	-0.055	+0.097	+0.055	-0.106	-0.035	57.04	+7.18
January 24, L.										
26	Boss 938.....	14	4 0 4.55	-0.042	+0.095	+0.044	-0.065	-0.003	11.66	+7.13
27	Boss 970.....	6	4 8 56.12	-0.066	+0.057	+0.037	-0.086	+0.011	3.22	+7.14
28	Boss 1003.....	16	4 15 14.08	-0.076	+0.072	+0.041	-0.110	+0.005	21.15	+7.13
29	Boss 1074.....	20	4 30 38.18	-0.066	+0.072	+0.037	-0.074	+0.013	45.23	+7.07
30	4 Camelopardalis.....	20	4 40 44.98	-0.050	+0.061	+0.051	-0.090	-0.015	52.05	+7.12
31	ε Ursæ Minoris s. P.	26	4 54 29.74	-0.072	+0.066	+0.411	+0.347	.....	37.86	.....
32	Boss 1222.....	20	5 4 13.37	-0.066	+0.083	+0.041	-0.096	+0.004	20.44	+7.12
33	λ Aurigæ.....	20	5 13 0.12	-0.058	+0.087	+0.037	-0.075	+0.017	7.23	+7.13
34	Boss 1311.....	20	5 21 51.41	-0.056	+0.067	+0.034	-0.066	+0.020	58.55	+7.15
35	o Aurigæ.....	20	5 39 9.47	-0.053	+0.045	+0.043	-0.082	-0.001	16.56	+7.13
36	Boss 1452.....	20	5 47 11.59	-0.054	+0.037	+0.056	-0.106	-0.014	18.64	+7.11
37	Boss 1498.....	20	5 57 1.12	-0.064	+0.070	+0.038	-0.087	+0.010	8.22	+7.14
38	Boss 1552.....	20	6 7 53.23	-0.065	+0.083	+0.056	-0.128	-0.032	0.38	+7.25
39	Boss 1608.....	20	6 19 14.69	-0.054	+0.049	+0.054	-0.102	-0.016	21.76	+7.13
40	51 Aurigæ.....	20	6 32 37.31	-0.058	+0.024	+0.036	-0.074	+0.005	44.37	+7.09
41	ψ Aurigæ.....	20	6 40 27.98	-0.051	+0.025	+0.039	-0.070	+0.003	35.07	+7.12
42	15 Lyncis.....	20	6 49 46.43	-0.048	+0.033	+0.054	-0.091	-0.011	53.53	+7.15
January 24, M.										
43	Boss 1846.....	20	7 6 37.28	-0.072	-0.032	+0.045	-0.116	+0.002	44.39	+7.18
44	25 H. Camelopardalis...	20	7 13 9.98	-0.071	+0.022	+0.217	-0.457	.....	16.71	.....
45	Boss 1948.....	20	7 23 20.48	-0.057	+0.088	+0.043	-0.088	-0.002	27.48	+7.05
46	24 Lyncis.....	20	7 35 41.01	-0.071	+0.055	+0.054	-0.135	-0.018	48.06	+7.15
47	26 Lyncis.....	20	7 48 23.22	-0.077	+0.078	+0.042	-0.115	+0.002	30.26	+7.11
48	27 Lyncis.....	20	8 1 55.94	-0.080	+0.083	+0.045	-0.129	-0.007	2.94	+7.09
49	31 Lyncis.....	20	8 16 52.96	-0.074	+0.102	+0.039	-0.102	+0.013	0.00	+7.09
50	Groombridge 1450....	20	8 27 15.35	-0.084	+0.063	+0.036	-0.105	+0.015	22.38	+7.08
51	Boss 2306.....	20	8 35 0.67	-0.079	+0.047	+0.040	-0.114	+0.003	7.78	+7.18
52	Boss 2423.....	20	8 57 39.49	-0.078	+0.071	+0.048	-0.134	-0.012	46.41	+7.02
53	Boss 2465.....	20	9 8 6.78	-0.100	+0.035	+0.039	-0.137	+0.004	13.91	+7.22
54	40 Lyncis.....	20	9 15 44.56	-0.086	+0.044	+0.034	-0.102	+0.013	51.67	+7.17
55	1 H. Draconis.....	24	9 25 1.69	-0.067	+0.048	+0.194	-0.390	.....	8.63	.....
56	Boss 2601.....	20	9 36 36.52	-0.066	+0.058	+0.037	-0.085	+0.011	43.56	+7.08
57	υ Ursæ Majoris.....	20	9 44 49.98	-0.080	+0.041	+0.055	-0.154	-0.015	57.07	+7.20
58	Boss 2673.....	20	9 53 53.68	-0.084	+0.017	+0.052	-0.153	-0.004	0.76	+7.18

TABLE IX.—Observations for Clock Corrections—Continued.

PARIS II, 1914—Continued.

No.	Date, Observer, and Star.	No. of Con- tacts.	Mean of Con- tact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi- muth.	Contact.	Level.	Azi- muth.		
January 31, M.*										
1	Boss 1348.....	20	h m s 5 29 26.73	-0.115	+0.534	+0.053	-0.197	-0.089	33.97	+7.47
2	o Aurigæ.....	20	5 39 9.24	-0.115	+0.513	+0.048	-0.178	-0.013	16.49	+7.39
3	Boss 1452.....	20	5 47 11.35	-0.115	+0.510	+0.062	-0.225	-0.194	18.51	+7.52
4	Boss 1498.....	20	5 57 0.68	-0.110	+0.497	+0.042	-0.149	+0.070	8.14	+7.50
5	Boss 1552.....	20	6 7 53.00	-0.112	+0.469	+0.062	-0.220	-0.182	0.27	+7.61
6	Boss 1608.....	20	6 19 14.49	-0.112	+0.499	+0.059	-0.211	-0.160	21.67	+7.49
7	51 Aurigæ.....	20	6 32 36.91	-0.106	+0.574	+0.040	-0.136	+0.121	44.36	+7.43
8	♂ Aurigæ.....	20	6 40 27.51	-0.098	+0.599	+0.043	-0.135	+0.075	35.06	+7.57
9	15 Lyncis.....	20	6 49 46.31	-0.091	+0.585	+0.059	-0.172	-0.189	53.51	+7.50
10	Boss 1846.....	20	7 6 36.94	-0.078	+0.539	+0.050	-0.125	-0.042	44.37	+7.55
11	25 H. Camelopardalis...	26	7 13 12.22	-0.089	+0.589	+0.240	-0.573	.....	16.58	.....
January 31, L.										
12	24 Lyncis.....	20	7 35 40.93	-0.114	+0.501	+0.060	-0.217	-0.170	48.09	+7.49
13	26 Lyncis.....	20	7 48 23.03	-0.102	+0.532	+0.046	-0.152	+0.014	30.31	+7.37
14	27 Lyncis.....	20	8 1 55.77	-0.105	+0.542	+0.050	-0.169	-0.044	3.02	+7.41
15	31 Lyncis.....	20	8 16 52.70	-0.106	+0.549	+0.043	-0.145	+0.071	0.08	+7.41
16	Groombridge 1450....	20	8 27 15.09	-0.105	+0.570	+0.039	-0.131	+0.133	22.46	+7.33
17	Boss 2306.....	20	8 35 0.56	-0.115	+0.574	+0.045	-0.166	+0.039	7.86	+7.38
18	Boss 2423.....	20	8 57 39.31	-0.125	+0.538	+0.054	-0.215	-0.094	46.52	+7.47
19	Boss 2465.....	20	9 8 6.61	-0.116	+0.528	+0.043	-0.159	+0.067	14.01	+7.45
20	1 H. Draconis.....	24	9 25 4.27	-0.098	+0.549	+0.215	-0.571	.....	9.10	.....
21	Boss 2601.....	20	9 36 36.43	-0.090	+0.577	+0.041	-0.116	+0.114	43.68	+7.21
22	u Urse Majoris.....	20	9 44 50.12	-0.089	+0.574	+0.061	-0.172	-0.208	57.27	+7.47
23	λ Urse Majoris.....	20	10 11 50.35	-0.094	+0.562	+0.043	-0.129	+0.074	57.79	+7.45
February 2, L.										
24	4 Camelopardalis.....	20	4 40 44.52	-0.004†	+0.556	+0.058	-0.007	-0.137	51.86	+7.43
25	ε Urse Minoris s. p.	28	4 54 27.92	+0.002	+0.579	+0.441	-0.010	.....	39.06	.....
26	Boss 1222.....	20	5 4 12.84	+0.001	+0.635	+0.047	+0.001	+0.032	20.28	+7.36
27	λ Aurigæ.....	20	5 12 59.48	+0.005	+0.657	+0.042	+0.006	+0.131	7.12	+7.46
28	Boss 1348.....	20	5 29 26.55	-0.006	+0.612	+0.055	-0.010	-0.102	33.93	+7.44
29	o Aurigæ.....	20	5 39 8.97	-0.006	+0.579	+0.050	-0.009	-0.015	16.46	+7.46
30	Boss 1452.....	20	5 47 11.08	+0.002	+0.550	+0.064	+0.004	-0.210	18.46	+7.52
31	Boss 1498.....	20	5 57 0.55	+0.003	+0.594	+0.044	+0.004	+0.084	8.12	+7.44
32	Boss 1552.....	20	6 7 52.84	+0.012	+0.606	+0.064	+0.024	-0.235	0.23	+7.54
33	Boss 1608.....	20	6 19 14.25	+0.014	+0.580	+0.061	+0.026	-0.186	21.64	+7.48
34	51 Aurigæ.....	20	6 32 36.75	+0.007	+0.614	+0.041	+0.009	+0.130	44.35	+7.42
35	♂ Aurigæ.....	20	6 40 27.42	+0.014	+0.563	+0.044	+0.019	+0.070	35.05	+7.50
36	15 Lyncis.....	20	6 49 46.07	+0.025	+0.542	+0.061	+0.047	-0.175	53.49	+7.49
37	Boss 1846.....	20	7 6 36.79	+0.025	+0.480	+0.051	+0.040	-0.037	44.35	+7.51
38	25 H. Camelopardalis...	26	7 13 10.55	+0.019	+0.484	+0.248	+0.122	.....	16.51	.....
February 2, M.										
39	24 Lyncis.....	20	7 35 40.62	+0.017	+0.503	+0.062	+0.032	-0.171	48.09	+7.55
40	26 Lyncis.....	20	7 48 22.72	+0.019	+0.585	+0.048	+0.028	+0.016	30.32	+7.51
41	27 Lyncis.....	20	8 1 55.56	+0.017	+0.538	+0.052	+0.027	-0.044	3.03	+7.43
42	31 Lyncis.....	20	8 16 52.42	+0.011	+0.530	+0.044	+0.015	+0.068	0.09	+7.54
43	Groombridge 1450....	20	8 27 14.80	+0.009	+0.630	+0.041	+0.011	+0.147	22.48	+7.48
44	76 Draconis s. p.	24	8 48 28.51	+0.008	+0.576	+0.443	-0.039	.....	39.70	.....
45	Boss 2423.....	20	8 57 39.06	-0.007	+0.494	+0.055	-0.012	-0.086	46.53	+7.51
46	Boss 2465.....	20	9 8 6.33	-0.008	+0.497	+0.044	-0.011	+0.063	14.03	+7.60
47	40 Lyncis.....	20	9 15 44.22	+0.012	+0.500	+0.039	+0.014	+0.148	51.81	+7.39
48	Boss 2601.....	20	9 36 36.14	+0.017	+0.478	+0.042	+0.022	+0.095	43.70	+7.40
49	u Urse Majoris.....	20	9 44 49.93	+0.011	+0.517	+0.063	+0.021	-0.187	57.32	+7.49
50	Boss 2673.....	20	9 53 53.68	+0.009	+0.512	+0.059	+0.016	-0.138	0.98	+7.36
51	λ Urse Majoris.....	20	10 11 50.20	+0.005	+0.517	+0.044	+0.007	+0.068	57.83	+7.51
52	30 H. Camelopardalis...	24	10 20 52.16	+0.003	+0.534	+0.262	+0.020	.....	57.68	.....
February 3, L.										
53	4 Camelopardalis.....	20	4 40 44.46	-0.022	+0.507	+0.060	-0.040	-0.125	51.84	+7.48
54	ε Urse Minoris s. p.	26	4 54 28.27	-0.001	+0.506	+0.448	+0.005	.....	39.19	.....
55	Boss 1222.....	20	5 4 12.63	+0.007	+0.547	+0.048	+0.010	+0.028	20.26	+7.54
56	λ Aurigæ.....	20	5 12 59.34	-0.002	+0.606	+0.043	-0.003	+0.121	7.12	+7.62

* Feet of instrument set in plaster Jan. 26.

† Level adjusted.

TABLE IX.—Observations for Clock Corrections—Continued.

PARIS II, 1914—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
1	Boss 1311.....	20	^h 5 ^m 21 ^s 50.64	−0.006	+0.610	+0.040	−0.007	+0.184	58.43	+7.57
2	Boss 1348.....	20	5 29 26.36	+0.010	+0.552	+0.057	+0.017	−0.092	33.91	+7.57
3	o Aurigæ.....	20	5 39 8.79	+0.019	+0.519	+0.051	+0.029	−0.013	16.45	+7.59
4	Boss 1452.....	20	5 47 10.99	+0.016	+0.504	+0.066	+0.031	−0.192	18.44	+7.55
5	Boss 1498.....	20	5 57 0.41	+0.016	+0.550	+0.045	+0.022	+0.078	8.10	+7.56
6	Boss 1552.....	20	6 7 52.71	+0.025	+0.551	+0.066	+0.049	−0.214	0.21	+7.60
7	Boss 1608.....	20	6 19 14.08	+0.018	+0.514	+0.063	+0.034	−0.164	21.62	+7.61
8	φ ^s Aurigæ.....	20	6 40 27.35	+0.006	+0.571	+0.046	+0.008	+0.071	35.04	+7.57
9	15 Lyncis.....	20	6 49 45.98	+0.012	+0.581	+0.063	+0.023	−0.188	53.49	+7.61
10	Boss 1846.....	20	7 6 36.68	+0.019	+0.547	+0.053	+0.031	−0.042	44.35	+7.63
11	25 H. Camelopardalis...	24	7 13 10.99	+0.015	+0.531	+0.256	+0.097	.....	16.47	.....
12	Boss 1948.....	20	7 23 19.88	+0.004	+0.536	+0.051	+0.006	−0.014	27.46	+7.54
February 3, M.										
13	24 Lyncis.....	20	7 35 40.62	−0.006	+0.520	+0.064	−0.011	−0.176	48.09	+7.59
14	27 Lyncis.....	20	8 1 55.40	+0.003	+0.596	+0.053	+0.005	−0.049	3.03	+7.62
15	31 Lyncis.....	20	8 16 52.46	+0.004	+0.579	+0.045	+0.005	+0.075	0.10	+7.52
16	Groombridge 1450....	20	8 27 14.81	+0.010	+0.567	+0.042	+0.013	+0.132	22.48	+7.48
17	Boss 2306.....	20	8 35 0.28	+0.005	+0.544	+0.048	+0.007	+0.037	7.87	+7.50
18	76 Draconis s. p.	22	8 48 29.02	+0.012	+0.519	+0.450	−0.058	.....	39.71	.....
19	Boss 2423.....	20	8 57 39.06	+0.009	+0.502	+0.057	+0.015	−0.087	46.54	+7.50
20	Boss 2465.....	20	9 8 6.40	+0.007	+0.523	+0.046	+0.010	+0.066	14.04	+7.52
21	40 Lyncis.....	20	9 15 44.12	+0.014	+0.536	+0.040	+0.016	+0.159	51.83	+7.49
22	1 H. Draconis.....	20	9 25 3.32	+0.003	+0.528	+0.229	+0.017	.....	9.19	.....
23	Boss 2601.....	20	9 36 36.16	−0.006	+0.577	+0.043	−0.008	+0.114	43.72	+7.40
24	υ Ursæ Majoris.....	20	9 44 49.85	+0.011	+0.598	+0.065	+0.021	−0.216	57.34	+7.62
25	λ Ursæ Majoris.....	20	10 11 50.18	+0.017	+0.555	+0.045	+0.023	+0.073	57.86	+7.54
26	30 H. Camelopardalis...	24	10 20 52.64	+0.004	+0.528	+0.271	+0.027	.....	57.75	.....
February 4, M.										
27	4 Camelopardalis.....	20	4 40 44.36	+0.009	+0.554	+0.060	+0.016	−0.136	51.81	+7.51
28	ε Ursæ Minoris s. p.	20	4 54 28.24	+0.017	+0.547	+0.448	−0.082	.....	39.31	.....
29	Boss 1222.....	20	5 4 12.56	+0.006	+0.564	+0.048	+0.009	+0.029	20.25	+7.60
30	λ Aurigæ.....	20	5 12 59.30	−0.001	+0.571	+0.043	−0.001	+0.114	7.09	+7.63
31	Boss 1311.....	20	5 21 50.61	−0.011	+0.557	+0.040	−0.013	+0.168	58.42	+7.61
32	Boss 1348.....	20	5 29 26.32	−0.021	+0.541	+0.057	−0.036	−0.090	33.90	+7.65
33	o Aurigæ.....	20	5 39 8.85	−0.019	+0.524	+0.051	−0.029	−0.014	16.44	+7.58
34	Boss 1452.....	20	5 47 11.00	+0.005	+0.531	+0.066	+0.010	−0.202	18.42	+7.56
35	Boss 1498.....	20	5 57 0.36	+0.002	+0.567	+0.045	+0.003	+0.080	8.10	+7.61
36	Boss 1552.....	20	6 7 52.74	−0.005	+0.547	+0.066	−0.010	−0.212	0.20	+7.62
37	Boss 1608.....	20	6 19 14.14	+0.002	+0.487	+0.063	+0.004	−0.156	21.61	+7.56
38	51 Aurigæ.....	20	6 33 36.62	−0.007	+0.491	+0.043	−0.009	+0.104	44.34	+7.58
39	φ ^s Aurigæ.....	20	6 40 27.32	−0.001	+0.547	+0.046	−0.001	+0.068	35.04	+7.61
40	15 Lyncis.....	20	6 49 46.05	+0.003	+0.547	+0.063	+0.006	−0.177	53.48	+7.54
41	Boss 1846.....	20	7 6 36.78	+0.009	+0.534	+0.053	+0.014	−0.041	44.34	+7.53
42	25 H. Camelopardalis...	20	7 13 10.94	+0.023	+0.544	+0.256	+0.148	.....	16.42	.....
43	Boss 1948.....	20	7 23 19.96	0.000	+0.515	+0.051	0.000	−0.014	27.46	+7.46
44	24 Lyncis.....	20	7 35 40.66	−0.007	+0.506	+0.064	−0.013	−0.172	48.09	+7.55
February 4, L.										
45	26 Lyncis.....	20	7 48 22.78	+0.007	+0.525	+0.049	+0.010	+0.014	30.33	+7.48
46	27 Lyncis.....	20	8 1 55.41	+0.004	+0.541	+0.053	+0.006	−0.044	3.04	+7.61
47	31 Lyncis.....	20	8 16 52.47	+0.003	+0.575	+0.045	+0.004	+0.074	0.11	+7.52
48	Groombridge 1450....	20	8 27 14.82	+0.003	+0.620	+0.042	+0.004	+0.144	22.49	+7.48
49	Boss 2306.....	20	8 35 0.26	+0.003	+0.627	+0.048	+0.004	+0.043	7.88	+7.52
50	76 Draconis s. p.	24	8 48 28.37	+0.009	+0.590	+0.450	−0.044	.....	39.71	.....
51	Boss 2423.....	20	8 57 39.04	+0.012	+0.504	+0.057	+0.021	−0.088	46.55	+7.52
52	Boss 2465.....	20	9 8 6.42	+0.008	+0.479	+0.046	+0.011	+0.061	14.05	+7.51
53	40 Lyncis.....	20	9 15 44.14	+0.005	+0.505	+0.040	+0.006	+0.149	51.84	+7.50
54	Boss 2601.....	20	9 36 36.05	+0.007	+0.529	+0.043	+0.009	+0.105	43.73	+7.52
55	υ Ursæ Majoris.....	20	9 44 49.94	+0.009	+0.552	+0.065	+0.017	−0.200	57.36	+7.54
56	Boss 2673.....	20	9 53 53.58	+0.011	+0.537	+0.061	+0.020	−0.144	1.02	+7.50
57	λ Ursæ Majoris.....	20	10 11 50.26	+0.015	+0.540	+0.045	+0.021	+0.071	57.88	+7.48
58	30 H. Camelopardalis...	24	10 20 52.46	+0.013	+0.547	+0.271	+0.088	.....	57.83	.....
59	Boss 2828.....	20	10 33 42.02	+0.025	+0.528	+0.056	+0.042	−0.083	49.60	+7.56

TABLE IX.—Observations for Clock Corrections—Continued.

PARIS II, 1914—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
February 5, L.										
1	4 Camelopardalis.....	20	h m s 4 40 44.26	+0.019	+0.579	+0.062	+0.034	-0.142	51.79	+7.58
2	ε Ursæ Minoris s. p.	24	4 54 28.32	+0.010	+0.590	+0.455	-0.048	.....	39.43	.....
3	Boss 1222.....	20	5 4 12.58	0.000	+0.618	+0.050	0.000	+0.032	20.24	+7.58
4	λ Aurigæ.....	20	5 12 59.34	-0.001	+0.598	+0.044	-0.001	+0.120	7.08	+7.58
5	Boss 1311.....	20	5 21 50.62	+0.003	+0.590	+0.041	+0.004	+0.178	58.41	+7.57
6	Boss 1348.....	20	5 29 26.20	+0.007	+0.569	+0.058	+0.012	-0.094	33.89	+7.71
7	ο Aurigæ.....	20	5 39 8.63	-0.003	+0.530	+0.053	-0.005	-0.014	16.42	+7.76
8	Boss 1452.....	20	5 47 10.74	-0.008	+0.521	+0.068	-0.016	-0.199	18.41	+7.82
9	Boss 1498.....	20	5 57 0.32	+0.001	+0.534	+0.046	+0.001	+0.075	8.10	+7.66
10	Boss 1552.....	20	6 7 52.56	-0.001	+0.520	+0.068	-0.002	-0.202	0.19	+7.77
11	Boss 1608.....	20	6 19 13.99	-0.001	+0.511	+0.065	-0.002	-0.164	21.60	+7.72
12	51 Aurigæ.....	20	6 32 36.55	+0.006	+0.539	+0.044	+0.008	+0.114	44.32	+7.60
13	φ ^h Aurigæ.....	20	6 40 27.27	+0.003	+0.571	+0.047	+0.004	+0.071	35.03	+7.64
14	15 Lyncis.....	20	6 49 45.86	-0.001	+0.562	+0.065	-0.002	-0.182	53.47	+7.73
15	Boss 1846.....	20	7 6 36.65	+0.008	+0.532	+0.055	+0.013	-0.041	44.35	+7.67
16	25 H. Camelopardalis....	28	7 13 10.53	+0.013	+0.532	+0.263	+0.084	.....	16.37	.....
17	Boss 1948.....	20	7 23 19.81	+0.009	+0.519	+0.053	+0.014	-0.014	27.47	+7.61
18	24 Lyncis.....	20	7 35 40.51	+0.013	+0.510	+0.066	+0.025	-0.173	48.09	+7.66
February 5, M.										
19	26 Lyncis.....	20	7 48 22.53	+0.011	+0.602	+0.051	+0.016	+0.016	30.33	+7.72
20	27 Lyncis.....	20	8 1 55.34	+0.005	+0.598	+0.055	+0.008	-0.049	3.04	+7.69
21	31 Lyncis.....	20	8 16 52.34	+0.015	+0.593	+0.047	+0.021	+0.076	0.11	+7.63
22	Groombridge 1450.....	20	8 27 14.62	+0.007	+0.648	+0.043	+0.009	+0.151	22.50	+7.68
23	Boss 2306.....	20	8 35 0.17	0.000	+0.682	+0.049	0.000	+0.046	7.90	+7.63
24	76 Draconis s. p.	22	8 48 28.18	-0.005	+0.633	+0.458	+0.024	.....	39.72	.....
25	Boss 2423.....	20	8 57 38.98	-0.013	+0.538	+0.059	-0.022	-0.094	46.57	+7.65
26	Boss 2465.....	20	9 8 6.26	-0.009	+0.563	+0.047	-0.012	+0.072	14.07	+7.70
27	40 Lyncis.....	20	9 15 43.98	-0.015	+0.586	+0.041	-0.018	+0.173	51.86	+7.68
28	1 H. Draconis.....	22	9 25 3.48	-0.012	+0.575	+0.236	-0.070	.....	9.27	.....
29	υ Ursæ Majoris.....	20	9 44 49.91	-0.003	+0.539	+0.067	-0.006	-0.195	57.38	+7.60
30	Boss 2673.....	20	9 53 53.46	-0.005	+0.530	+0.063	-0.009	-0.143	1.04	+7.67
31	λ Ursæ Majoris.....	20	10 11 50.08	-0.011	+0.585	+0.047	-0.015	+0.077	57.90	+7.71
32	30 H. Camelopardalis....	22	10 20 52.74	-0.013	+0.591	+0.279	-0.088	.....	57.92	.....
33	Boss 2828.....	20	10 33 41.96	-0.016	+0.550	+0.058	-0.027	-0.086	49.63	+7.73
February 9, M.										
34	Boss 1948.....	20	7 23 19.78	-0.009	+0.518	+0.054	-0.014	-0.014	27.49	+7.68
35	24 Lyncis.....	20	7 35 40.36	-0.022	+0.506	+0.068	-0.042	-0.172	48.07	+7.86
36	26 Lyncis.....	20	7 48 22.49	-0.017	+0.532	+0.052	-0.025	+0.014	30.33	+7.80
February 9, L.										
37	40 Lyncis.....	20	9 15 43.89	-0.022	+0.686	+0.043	-0.026	+0.203	51.90	+7.79
February 10, L.										
38	Boss 1222.....	20	5 4 12.34	-0.046	-0.265*	+0.053	-0.067	-0.014	20.18	+7.87
39	λ Aurigæ.....	20	5 12 59.21	-0.045	-0.276	+0.047	-0.058	-0.055	7.00	+7.86
40	Boss 1348.....	20	5 29 25.89	-0.050	-0.292	+0.062	-0.085	+0.048	33.82	+7.91
41	ο Aurigæ.....	20	5 39 8.50	-0.054	-0.337	+0.056	-0.084	+0.009	16.34	+7.86
42	Boss 1452.....	20	5 47 10.30	-0.050	-0.329	+0.072	-0.098	+0.125	18.34	+7.94
43	δ Ursæ Minoris s. p.	24	5 59 35.42	-0.046	-0.330	+1.082	+0.554	.....	41.16	.....
44	Boss 1552.....	20	6 7 52.06	-0.042	-0.335	+0.072	-0.082	+0.130	0.14	+7.96
45	Boss 1608.....	20	6 19 13.58	-0.037	-0.343	+0.069	-0.070	+0.110	21.56	+7.87
46	51 Aurigæ.....	20	6 32 36.58	-0.037	-0.309	+0.047	-0.047	-0.065	44.28	+7.76
47	φ ^h Aurigæ.....	20	6 40 27.21	-0.034	-0.250	+0.050	-0.047	-0.031	34.99	+7.81
48	15 Lyncis.....	14	6 49 45.48	-0.034	-0.262	+0.069	-0.064	+0.085	53.41	+7.84
49	Boss 1846.....	20	7 6 36.43	-0.029	-0.324	+0.058	-0.047	+0.025	44.35	+7.88
50	25 H. Camelopardalis....	26	7 13 6.74	-0.027	-0.362	+0.279	-0.174	.....	16.09	.....
51	Boss 1948.....	20	7 23 19.69	-0.038	-0.349	+0.056	-0.059	+0.009	27.48	+7.78
52	26 Lyncis.....	20	7 48 22.62	-0.039	-0.344	+0.054	-0.058	-0.009	30.33	+7.72
53	27 Lyncis.....	20	8 1 55.10	-0.040	-0.343	+0.058	-0.065	+0.028	3.04	+7.92

* Azimuth adjusted.

TABLE IX.—*Observations for Clock Corrections—Continued.*

PARIS II, 1914—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
February 10, M.										
1	31 Lyncis.....	20	^h ^m ^s 8 16 52.32	^s −0.039	^s −0.277	^s +0.050	^s −0.054	^s −0.036	^s 0.13	^s +7.85
2	Groombridge 1450....	20	8 27 14.74	−0.035	−0.258	+0.046	−0.044	−0.060	22.52	+7.84
3	Boss 2306.....	20	8 35 0.10	−0.034	−0.327	+0.052	−0.049	−0.022	7.96	+7.88
4	76 Draconis s. p.	22	8 48 33.38	−0.050	−0.376	+0.472	+0.242	.....	39.67	.....
5	Boss 2423.....	20	8 57 38.78	−0.056	−0.397	+0.062	−0.096	+0.069	46.66	+7.84
6	1 H. Draconis.....	22	9 25 0.23	−0.047	−0.356	+0.250	−0.274	.....	9.51	.....
7	υ Ursæ Majoris.....	20	9 44 49.45	−0.047	−0.366	+0.071	−0.091	+0.132	57.47	+7.91
8	λ Ursæ Majoris.....	20	10 11 50.20	−0.037	−0.388	+0.050	−0.051	−0.051	57.98	+7.83
9	30 H. Camelopardalis...	22	10 20 48.59	−0.039	−0.431	+0.295	−0.265	.....	58.40	.....
10	Boss 2828.....	20	10 33 41.81	−0.052	−0.433	+0.061	−0.088	+0.068	49.79	+7.94
11	Boss 2898.....	20	10 48 18.26	−0.051	−0.412	+0.063	−0.088	+0.077	26.14	+7.83
February 12, M.										
12	λ Aurigæ.....	20	5 12 59.03	−0.038	−0.384	+0.048	−0.049	−0.077	6.97	+8.02
13	Boss 1311.....	20	5 21 50.38	−0.032	−0.405	+0.045	−0.038	−0.122	58.34	+8.08
14	Boss 1348.....	20	5 29 25.60	−0.027	−0.453	+0.064	−0.046	+0.075	33.76	+8.08
15	ο Aurigæ.....	16	5 39 8.28	−0.041	−0.494	+0.057	−0.064	+0.013	16.31	+8.02
16	Boss 1452.....	18	5 47 10.02	−0.040	−0.451	+0.074	−0.078	+0.172	18.28	+8.09
17	δ Ursæ Minoris s. p.	22	5 59 36.49	−0.034	−0.396	+1.098	+0.409	.....	41.76	.....
18	Boss 1608.....	20	6 19 13.32	−0.035	−0.403	+0.071	−0.066	+0.129	21.51	+8.06
19	51 Aurigæ.....	20	6 32 36.40	−0.034	−0.388	+0.048	−0.043	−0.082	44.26	+7.94
20	ψ Aurigæ.....	8	6 40 27.03	−0.035	−0.393	+0.051	−0.048	−0.049	34.97	+7.99
21	15 Lyncis.....	20	6 49 45.34	−0.042	−0.429	+0.071	−0.079	+0.139	53.38	+7.91
22	Boss 1846.....	20	7 6 36.20	−0.046	−0.434	+0.060	−0.074	+0.033	44.32	+8.10
23	25 H. Camelopardalis...	20	7 13 6.45	−0.046	−0.409	+0.287	−0.296	.....	15.96	.....
24	27 Lyncis.....	20	8 1 55.16	−0.044	−0.503	+0.060	−0.071	+0.041	3.04	+7.85
February 12, L.										
25	31 Lyncis.....	20	8 16 52.21	−0.046	−0.491	+0.051	−0.063	−0.063	0.13	+8.00
26	Groombridge 1450....	20	8 27 14.70	−0.041	−0.445	+0.047	−0.051	−0.104	22.53	+7.94
27	Boss 2306.....	20	8 34 59.96	−0.039	−0.434	+0.053	−0.056	−0.030	7.96	+8.03
28	76 Draconis s. p.	32	8 48 33.69	−0.041	−0.468	+0.480	+0.199	.....	39.71	.....
29	Boss 2423.....	20	8 57 38.54	−0.041	−0.494	+0.064	−0.070	+0.086	46.66	+8.04
30	Boss 2465.....	20	9 8 6.32	−0.036	−0.460	+0.051	−0.049	−0.058	14.16	+7.90
31	40 Lyncis.....	20	9 15 44.13	−0.042	−0.443	+0.045	−0.050	−0.131	51.93	+7.94
32	1 H. Draconis.....	30	9 24 59.88	−0.041	−0.453	+0.257	−0.239	.....	9.56	.....
February 17, L.										
33	ε Ursæ Minoris s. p.	24	4 54 34.98	+0.003	−0.411	+0.492	−0.014	.....	41.20	.....
34	Boss 1348.....	20	5 29 25.16	−0.003	−0.458	+0.067	−0.005	+0.076	33.63	+8.33
35	ο Aurigæ.....	20	5 39 7.91	−0.011	−0.461	+0.060	−0.017	+0.012	16.20	+8.23
36	Boss 1498.....	20	5 56 59.68	−0.021	−0.491	+0.053	−0.029	−0.069	7.78	+8.14
37	Boss 1552.....	20	6 7 51.40	−0.019	−0.503	+0.078	−0.037	+0.195	59.93	+8.29
38	Boss 1608.....	20	6 19 12.81	−0.008	−0.533	+0.075	−0.015	+0.171	21.38	+8.34
39	51 Aurigæ.....	20	6 32 36.03	−0.011	−0.484	+0.051	−0.014	−0.102	44.21	+8.24
40	ψ Aurigæ.....	20	6 40 26.62	−0.013	−0.389	+0.054	−0.018	−0.049	34.91	+8.30
41	15 Lyncis.....	20	6 49 44.77	−0.012	−0.404	+0.075	−0.023	+0.130	53.29	+8.34
42	Boss 1846.....	20	7 6 35.87	−0.009	−0.493	+0.063	−0.014	+0.038	44.24	+8.28
43	25 H. Camelopardalis...	24	7 13 4.78	−0.003	−0.520	+0.302	−0.019	.....	15.56	.....
44	Boss 1948.....	20	7 23 19.09	+0.003	−0.511	+0.060	+0.005	+0.014	27.40	+8.22
45	24 Lyncis.....	20	7 35 39.46	−0.006	−0.518	+0.076	−0.011	+0.176	48.00	+8.30
46	26 Lyncis.....	20	7 48 22.06	−0.012	−0.493	+0.058	−0.018	−0.013	30.30	+8.21
47	27 Lyncis.....	20	8 1 54.73	−0.012	−0.529	+0.063	−0.019	+0.043	3.01	+8.19
48	31 Lyncis.....	20	8 16 51.91	−0.019	−0.581	+0.054	−0.026	−0.075	0.13	+8.27
49	Groombridge 1450....	20	8 27 14.51	−0.015	−0.525	+0.050	−0.019	−0.122	22.52	+8.10
February 17, M.										
50	Boss 2306.....	20	8 34 59.67	−0.017	−0.495	+0.056	−0.025	−0.034	7.94	+8.27
51	76 Draconis s. p.	20	8 48 34.22	−0.025	−0.510	+0.494	+0.121	.....	39.94	.....
52	Boss 2423.....	20	8 57 38.31	−0.023	−0.529	+0.067	−0.040	+0.092	46.65	+8.22
53	Boss 2465.....	20	9 8 6.00	−0.017	−0.456	+0.054	−0.023	−0.058	14.17	+8.20
54	40 Lyncis.....	20	9 15 43.84	−0.011	−0.448	+0.047	−0.013	−0.133	51.95	+8.21
55	1 H. Draconis.....	22	9 24 59.25	−0.016	−0.509	+0.270	−0.093	.....	9.53	.....
56	Boss 2601.....	20	9 36 35.84	−0.023	−0.525	+0.051	−0.030	−0.104	43.89	+8.13

TABLE IX.—Observations for Clock Corrections—Continued.

PARIS II, 1914—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
February 24, L.										
1	Boss 1552.....	20	h m s 6 7 50.90	-0.003	-0.079*	+0.082	-0.006	+0.031	59.78	+8.77
2	Boss 1608.....	20	6 19 12.33	-0.012	-0.109	+0.078	-0.023	+0.035	21.24	+8.82
3	51 Aurigæ.....	20	6 32 35.39	-0.002	-0.081	+0.053	-0.003	-0.017	44.11	+8.69
4	ψ Aurigæ.....	20	6 40 26.02	+0.004	-0.049	+0.057	+0.005	-0.006	34.81	+8.73
5	15 Lyncis.....	20	6 49 44.31	-0.007	-0.093	+0.079	-0.013	+0.030	53.14	+8.73
6	Boss 1846.....	20	7 6 35.24	-0.004	-0.142	+0.066	-0.006	+0.011	44.17	+8.86
7	25 H. Camelopardalis...	28	7 13 5.15	-0.003	-0.111	+0.318	-0.019	.....	14.90	.....
8	Boss 1948.....	20	7 23 18.53	-0.007	-0.111	+0.064	-0.011	+0.003	27.34	+8.75
9	24 Lyncis.....	20	7 35 38.99	-0.006	-0.127	+0.079	-0.011	+0.043	47.89	+8.79
10	26 Lyncis.....	20	7 48 21.42	-0.006	-0.113	+0.061	-0.009	-0.003	30.23	+8.76
11	27 Lyncis.....	20	8 1 54.18	-0.013	-0.101	+0.066	-0.021	+0.008	2.96	+8.73
12	31 Lyncis.....	20	8 16 51.32	-0.011	-0.087	+0.056	-0.015	-0.011	0.09	+8.74
13	Groombridge 1450....	20	8 27 13.83	-0.003	-0.069	+0.052	-0.004	-0.016	22.50	+8.64
14	Boss 2306.....	20	8 34 59.13	-0.001	-0.072	+0.059	-0.001	-0.005	7.95	+8.77
15	76 Draconis s. P.	30	8 48 31.57	-0.003	-0.095	+0.509	+0.015	.....	40.19	.....
16	Boss 2423.....	20	8 57 37.78	-0.004	-0.175	+0.071	-0.007	+0.030	46.68	+8.81
February 24, M.										
17	Boss 2673.....	20	9 53 52.60	-0.018	-0.110	+0.076	-0.033	+0.030	1.33	+8.66
18	λ Ursæ Majoris.....	20	10 11 49.52	-0.017	-0.143	+0.056	-0.023	-0.019	58.16	+8.63
19	30 H. Camelopardalis...	22	10 20 49.64	-0.026	-0.159	+0.336	-0.176	.....	59.02	.....
20	Boss 2926.....	20	10 55 55.86	-0.024	-0.225	+0.053	-0.031	-0.047	4.55	+8.71
21	ψ Ursæ Majoris.....	20	11 4 44.57	-0.018	-0.172	+0.058	-0.025	-0.016	53.28	+8.69
22	Boss 2980.....	20	11 11 46.33	-0.020	-0.141	+0.064	-0.031	+0.004	54.92	+8.55
23	Boss 3023.....	20	11 24 20.82	-0.019	-0.150	+0.053	-0.024	-0.031	29.42	+8.60
24	Boss 3063.....	20	11 33 40.32	-0.024	-0.164	+0.057	-0.033	-0.019	48.99	+8.67
25	χ Ursæ Majoris.....	20	11 41 25.45	-0.034	-0.201	+0.061	-0.051	-0.003	34.13	+8.67
February 25, M.										
26	15 Lyncis.....	20	6 49 44.29	-0.023	-0.191	+0.079	-0.043	+0.062	53.11	+8.72
27	Boss 1846.....	20	7 6 35.32	-0.021	-0.205	+0.066	-0.034	+0.016	44.14	+8.77
28	Boss 1948.....	20	7 23 18.60	-0.037	-0.204	+0.064	-0.057	+0.006	27.31	+8.70
29	Groombridge 1450....	20	8 27 13.82	-0.019	-0.190	+0.052	-0.024	-0.044	22.50	+8.70
February 25, L.										
30	Boss 2673.....	20	9 53 52.44	-0.004	-0.139	+0.076	-0.007	+0.037	1.33	+8.78
31	λ Ursæ Majoris.....	20	10 11 49.52	-0.001	-0.146	+0.056	-0.001	-0.015	58.16	+8.60
February 26, L.										
32	26 Lyncis.....	20	7 48 21.41	-0.009	-0.110	+0.061	-0.013	-0.003	30.20	+8.75
33	27 Lyncis.....	20	8 1 54.16	-0.003	-0.161	+0.066	-0.005	+0.013	2.93	+8.70
34	31 Lyncis.....	20	8 16 51.34	+0.001	-0.198	+0.056	+0.001	-0.026	0.08	+8.71
35	Groombridge 1450....	20	8 27 13.81	-0.007	-0.187	+0.052	-0.009	-0.044	22.49	+8.68
36	Boss 2306.....	20	8 34 59.21	-0.017	-0.180	+0.059	-0.025	-0.012	7.92	+8.69
37	76 Draconis s. P.	26	8 48 32.11	-0.005	-0.186	+0.509	+0.024	.....	40.33	.....
38	Boss 2423.....	20	8 57 37.82	-0.003	-0.211	+0.071	-0.005	+0.037	46.66	+8.74
39	Boss 2465.....	20	9 8 5.47	-0.005	-0.199	+0.057	-0.007	-0.025	14.19	+8.70
40	40 Lyncis.....	20	9 15 43.30	-0.007	-0.181	+0.050	-0.008	-0.054	51.97	+8.68
41	1 H. Draconis.....	28	9 24 59.46	-0.012	-0.190	+0.284	-0.070	.....	9.51	.....
42	Boss 2601.....	20	9 36 35.31	-0.007	-0.186	+0.054	-0.009	-0.037	43.94	+8.62
43	υ Ursæ Majoris.....	20	9 44 48.64	-0.005	-0.176	+0.081	-0.010	+0.064	57.61	+8.83
44	Boss 2673.....	20	9 53 52.47	-0.001	-0.198	+0.076	-0.002	+0.053	1.32	+8.72
45	λ Ursæ Majoris.....	20	10 11 49.44	-0.001	-0.190	+0.056	-0.001	-0.025	58.17	+8.70
46	30 H. Camelopardalis...	24	10 20 48.87	+0.009	-0.164	+0.336	+0.061	.....	59.03	.....
47	Boss 2828.....	20	10 33 41.10	+0.012	-0.193	+0.070	+0.020	+0.030	50.03	+8.81
48	Boss 2898.....	20	10 48 17.60	+0.002	-0.205	+0.072	+0.003	+0.039	26.43	+8.72
49	ψ Ursæ Majoris.....	20	11 4 44.53	0.000	-0.196	+0.058	0.000	-0.019	53.30	+8.73
50	Boss 3023.....	20	11 24 20.74	-0.004	-0.180	+0.053	-0.005	-0.037	29.44	+8.69
51	Boss 3063.....	20	11 33 40.27	-0.009	-0.163	+0.057	-0.013	-0.019	49.01	+8.72
52	χ Ursæ Majoris.....	20	11 41 25.44	-0.010	-0.163	+0.061	-0.015	-0.002	34.17	+8.69
53	γ Ursæ Majoris.....	20	11 49 13.66	-0.007	-0.174	+0.070	-0.012	+0.028	22.49	+8.74
54	Boss 3143.....	20	11 57 39.23	-0.005	-0.195	+0.057	-0.007	-0.025	48.04	+8.79

* Azimuth adjusted Feb. 19.

TABLE IX.—Observations for Clock Corrections—Continued.

PARIS II, 1914—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
February 27, L.										
1	δ Ursæ Minoris s. p.	20	h m s 5 59 37.71	s -0.022	s -0.182	s +1.165	s +0.265	s	s 46.37	s
2	Boss 1608.....	20	6 19 12.20	-0.024	-0.189	+0.078	-0.045	+0.060	21.13	+8.84
3	ϕ^s Aurigæ.....	20	6 40 25.90	-0.027	-0.148	+0.057	-0.037	-0.018	34.76	+8.86
4	15 Lyncis.....	20	6 49 44.11	-0.028	-0.154	+0.079	-0.053	+0.050	53.07	+8.88
5	Boss 1846.....	20	7 6 35.24	-0.023	-0.173	+0.066	-0.037	+0.013	44.08	+8.80
6	25 H. Camelopardalis.....	20	7 13 4.78	-0.021	-0.172	+0.318	-0.135	.....	14.57	.....
7	Boss 1948.....	20	7 23 18.51	-0.012	-0.194	+0.064	-0.019	+0.005	27.26	+8.70
8	24 Lyncis.....	20	7 35 38.83	-0.008	-0.230	+0.079	-0.015	+0.078	47.84	+8.87
9	26 Lyncis.....	20	7 48 21.42	-0.018	-0.222	+0.061	-0.027	-0.006	30.19	+8.74
10	27 Lyncis.....	20	8 1 54.07	-0.014	-0.226	+0.066	-0.023	+0.019	2.92	+8.79
11	31 Lyncis.....	20	8 16 51.30	-0.013	-0.228	+0.056	-0.018	-0.029	0.07	+8.76
12	Groombridge 1450.....	20	8 27 13.77	-0.015	-0.185	+0.052	-0.019	-0.043	22.49	+8.73
13	Boss 2306.....	20	8 34 59.12	-0.019	-0.185	+0.059	-0.027	-0.013	7.91	+8.77
14	76 Draconis s. p.	20	8 48 32.44	-0.017	-0.197	+0.509	+0.082	.....	40.43	.....
15	Boss 2423.....	20	8 57 37.80	-0.017	-0.176	+0.071	-0.029	+0.031	46.64	+8.77
February 27, M.										
16	Boss 2465.....	20	9 8 5.36	-0.024	-0.181	+0.057	-0.033	-0.023	14.18	+8.82
17	40 Lyncis.....	20	9 15 43.26	-0.026	-0.172	+0.050	-0.031	-0.051	51.97	+8.74
18	1 H. Draconis.....	20	9 24 59.94	-0.027	-0.198	+0.284	-0.157	.....	9.46	.....
19	Boss 2601.....	20	9 36 35.25	-0.007	-0.164	+0.054	-0.009	-0.032	43.94	+8.68
20	ν Ursæ Majoris.....	20	9 44 48.65	-0.007	-0.163	+0.081	-0.014	+0.059	57.61	+8.83
21	Boss 2673.....	20	9 53 52.43	-0.023	-0.200	+0.076	-0.042	+0.054	1.32	+8.80
22	λ Ursæ Majoris.....	20	10 11 49.28	-0.021	-0.165	+0.056	-0.029	-0.022	58.18	+8.90
23	30 H. Camelopardalis.....	20	10 20 49.77	-0.027	-0.157	+0.336	-0.183	.....	59.03	.....
24	Boss 2828.....	20	10 33 41.02	-0.035	-0.189	+0.070	-0.059	+0.030	50.03	+8.97
25	Boss 2898.....	20	10 48 17.53	-0.037	-0.243	+0.072	-0.064	+0.046	26.43	+8.85
26	Boss 2926.....	14	10 55 55.68	-0.031	-0.234	+0.053	-0.040	-0.048	4.56	+8.92
27	Boss 3023.....	20	11 24 20.66	-0.025	-0.190	+0.053	-0.032	-0.039	29.45	+8.81
28	Boss 3063.....	20	11 33 40.18	-0.027	-0.196	+0.057	-0.037	-0.023	49.02	+8.84
29	χ Ursæ Majoris.....	20	11 41 25.33	-0.025	-0.184	+0.061	-0.037	-0.003	34.19	+8.84
30	γ Ursæ Majoris.....	20	11 49 13.62	-0.028	-0.198	+0.070	-0.048	+0.031	22.51	+8.84
31	Boss 3143.....	20	11 57 39.16	-0.029	-0.167	+0.057	-0.040	-0.021	48.05	+8.89
February 28, M.										
32	Boss 1608.....	20	6 18 11.98	-0.011	-0.180	+0.078	-0.021	+0.058	21.09	+8.99
33	ϕ^s Aurigæ.....	20	6 40 25.74	-0.017	-0.158	+0.057	-0.023	-0.020	34.74	+8.99
34	15 Lyncis.....	20	6 49 43.97	-0.017	-0.189	+0.079	-0.032	+0.061	53.04	+8.96
35	Boss 1846.....	20	7 5 35.04	-0.027	-0.214	+0.066	-0.043	+0.016	44.06	+8.98
36	25 H. Camelopardalis.....	20	7 13 4.78	-0.024	-0.190	+0.318	-0.155	.....	14.46	.....
37	24 Lyncis.....	20	7 35 38.82	-0.034	-0.230	+0.079	-0.065	+0.078	47.82	+8.91
38	26 Lyncis.....	20	7 48 21.20	-0.030	-0.214	+0.061	-0.045	-0.006	30.18	+8.97
39	27 Lyncis.....	20	8 1 54.06	-0.025	-0.236	+0.066	-0.040	+0.019	2.91	+8.81
40	31 Lyncis.....	20	8 15 51.15	-0.026	-0.262	+0.056	-0.036	-0.034	0.06	+8.92
41	Groombridge 1450.....	20	8 27 13.66	-0.024	-0.210	+0.052	-0.030	-0.049	22.48	+8.85
42	Boss 2306.....	20	8 34 58.98	-0.017	-0.165	+0.059	-0.025	-0.011	7.89	+8.89
43	Boss 2423.....	20	8 57 37.72	-0.012	-0.157	+0.071	-0.021	+0.027	46.63	+8.83
44	Boss 2465.....	20	9 8 5.38	-0.024	-0.230	+0.057	-0.033	-0.029	14.17	+8.79
February 28, L.										
45	40 Lyncis.....	20	9 15 43.16	-0.022	-0.214	+0.050	-0.026	-0.063	51.97	+8.85
46	1 H. Draconis.....	22	9 24 59.48	-0.006	-0.236	+0.284	-0.035	.....	9.41	.....
47	Boss 2601.....	20	9 36 35.24	-0.009	-0.223	+0.054	-0.012	-0.044	43.93	+8.69
48	ν Ursæ Majoris.....	20	9 44 48.50	-0.015	-0.223	+0.081	-0.029	+0.081	57.61	+8.98
49	Boss 2673.....	20	9 53 52.30	-0.015	-0.230	+0.076	-0.027	+0.062	1.31	+8.90
50	λ Ursæ Majoris.....	20	10 11 49.32	-0.021	-0.185	+0.056	-0.029	-0.024	58.19	+8.87
51	30 H. Camelopardalis.....	24	10 20 48.92	-0.027	-0.188	+0.336	-0.183	.....	59.01	.....
52	Boss 2828.....	20	10 33 41.00	-0.020	-0.207	+0.070	-0.034	+0.032	50.03	+8.96
53	Boss 2898.....	20	10 48 17.51	-0.007	-0.202	+0.072	-0.012	+0.038	26.43	+8.82
54	Boss 2926.....	20	10 55 55.76	-0.011	-0.165	+0.053	-0.014	-0.034	4.57	+8.81
55	Boss 2980.....	20	11 11 46.06	-0.011	-0.154	+0.064	-0.017	+0.005	54.95	+8.84
56	Boss 3023.....	20	11 24 20.62	+0.003	-0.115	+0.053	+0.004	-0.023	29.46	+8.81
57	Boss 3063.....	20	11 33 40.19	-0.001	-0.105	+0.057	-0.001	-0.012	49.03	+8.80
58	χ Ursæ Majoris.....	20	11 41 25.30	+0.007	-0.160	+0.062	+0.011	-0.002	34.21	+8.84
59	γ Ursæ Majoris.....	20	11 49 13.54	+0.001	-0.223	+0.070	+0.002	+0.035	22.53	+8.88

TABLE IX.—*Observations for Clock Corrections—Continued.*

PARIS II, 1914—Continued.

No.	Date, Observer, and Star.	No. of Contacts.	Mean of Contact Times.	Instrumental.		Corrections for—			App. R. A. (Boss).	Observed Clock Corr.
				Level.	Azi-muth.	Contact.	Level.	Azi-muth.		
March 2, L.										
1	δ Ursæ Minoris s. p.	20	$\begin{smallmatrix} h & m & s \\ 5 & 59 & 40.39 \end{smallmatrix}$	-0.013	-0.267	$+1.149$	$+0.156$	.....	47.44	.....
2	51 Aurigæ	20	$\begin{smallmatrix} 6 & 32 & 35.10 \end{smallmatrix}$	-0.013	-0.258	$+0.052$	-0.017	-0.054	44.01	$+8.93$
3	ψ Aurigæ	20	$\begin{smallmatrix} 6 & 40 & 25.71 \end{smallmatrix}$	-0.009	-0.247	$+0.055$	-0.012	-0.031	34.71	$+8.99$
4	15 Lyncis	20	$\begin{smallmatrix} 6 & 49 & 43.76 \end{smallmatrix}$	-0.005	-0.263	$+0.077$	-0.009	$+0.085$	52.99	$+9.08$
5	Boss 1846	20	$\begin{smallmatrix} 7 & 6 & 34.87 \end{smallmatrix}$	-0.005	-0.303	$+0.064$	-0.008	$+0.023$	44.01	$+9.06$
6	25 H. Camelopardalis	20	$\begin{smallmatrix} 7 & 13 & 3.55 \end{smallmatrix}$	-0.007	-0.292	$+0.310$	-0.045	.....	14.23	.....
7	Boss 1948	20	$\begin{smallmatrix} 7 & 23 & 18.17 \end{smallmatrix}$	-0.007	-0.283	$+0.062$	-0.011	$+0.008$	27.20	$+8.97$
8	24 Lyncis	20	$\begin{smallmatrix} 7 & 35 & 38.57 \end{smallmatrix}$	-0.012	-0.331	$+0.077$	-0.023	$+0.112$	47.77	$+9.03$
9	26 Lyncis	20	$\begin{smallmatrix} 7 & 48 & 21.14 \end{smallmatrix}$	-0.022	-0.335	$+0.060$	-0.033	-0.009	30.15	$+8.99$
10	27 Lyncis	20	$\begin{smallmatrix} 8 & 1 & 53.72 \end{smallmatrix}$	-0.019	-0.323	$+0.065$	-0.031	$+0.026$	2.88	$+9.10$
11	31 Lyncis	20	$\begin{smallmatrix} 8 & 16 & 50.92 \end{smallmatrix}$	-0.009	-0.312	$+0.055$	-0.012	-0.040	0.04	$+9.12$
12	Groombridge 1450	20	$\begin{smallmatrix} 8 & 27 & 13.48 \end{smallmatrix}$	-0.007	-0.272	$+0.051$	-0.009	-0.063	22.46	$+9.00$
13	Boss 2306	20	$\begin{smallmatrix} 8 & 34 & 58.82 \end{smallmatrix}$	$+0.001$	-0.256	$+0.058$	$+0.001$	-0.017	7.87	$+9.01$
14	76 Draconis s. p.	20	$\begin{smallmatrix} 8 & 48 & 33.20 \end{smallmatrix}$	0.000	-0.304	$+0.502$	0.000	.....	40.71	.....
15	Boss 2423	20	$\begin{smallmatrix} 8 & 57 & 37.40 \end{smallmatrix}$	-0.011	-0.349	$+0.069$	-0.019	$+0.061$	46.60	$+9.09$
16	Boss 2465	20	$\begin{smallmatrix} 9 & 8 & 5.18 \end{smallmatrix}$	-0.017	-0.325	$+0.055$	-0.023	-0.041	14.15	$+8.98$
17	40 Lyncis	20	$\begin{smallmatrix} 9 & 15 & 43.04 \end{smallmatrix}$	-0.007	-0.328	$+0.049$	-0.008	-0.097	51.97	$+8.99$
March 2, M.										
18	1 H. Draconis	20	$\begin{smallmatrix} 9 & 24 & 59.01 \end{smallmatrix}$	-0.003	-0.257	$+0.277$	-0.017	.....	9.31	.....
19	Boss 2601	20	$\begin{smallmatrix} 9 & 36 & 34.95 \end{smallmatrix}$	-0.006	-0.220	$+0.052$	-0.008	-0.044	43.92	$+8.97$
20	ν Ursæ Majoris	20	$\begin{smallmatrix} 9 & 44 & 48.36 \end{smallmatrix}$	-0.005	-0.252	$+0.079$	-0.010	$+0.091$	57.61	$+9.09$
21	Boss 2673	20	$\begin{smallmatrix} 9 & 53 & 52.10 \end{smallmatrix}$	-0.003	-0.285	$+0.074$	-0.005	$+0.077$	1.30	$+9.05$
22	λ Ursæ Majoris	20	$\begin{smallmatrix} 10 & 11 & 49.16 \end{smallmatrix}$	-0.008	-0.241	$+0.055$	-0.011	-0.032	58.19	$+9.02$
23	30 H. Camelopardalis	20	$\begin{smallmatrix} 10 & 20 & 48.58 \end{smallmatrix}$	-0.012	-0.232	$+0.328$	-0.081	.....	58.98	.....
24	Boss 2828	20	$\begin{smallmatrix} 10 & 33 & 40.85 \end{smallmatrix}$	-0.006	-0.287	$+0.068$	-0.010	$+0.045$	50.03	$+9.08$
25	Boss 2898	20	$\begin{smallmatrix} 10 & 48 & 17.36 \end{smallmatrix}$	$+0.002$	-0.299	$+0.070$	$+0.003$	$+0.056$	26.44	$+8.95$
26	Boss 2926	20	$\begin{smallmatrix} 10 & 55 & 55.53 \end{smallmatrix}$	-0.002	-0.266	$+0.052$	-0.003	-0.055	4.58	$+9.06$
27	ϕ Ursæ Majoris	20	$\begin{smallmatrix} 11 & 4 & 44.17 \end{smallmatrix}$	-0.003	-0.247	$+0.057$	-0.004	-0.023	53.35	$+9.15$
28	Boss 3023	20	$\begin{smallmatrix} 11 & 24 & 20.44 \end{smallmatrix}$	-0.009	-0.191	$+0.052$	-0.012	-0.039	29.47	$+9.03$
29	Boss 3063	20	$\begin{smallmatrix} 11 & 33 & 39.99 \end{smallmatrix}$	-0.003	-0.192	$+0.056$	-0.004	-0.022	49.05	$+9.03$
30	χ Ursæ Majoris	20	$\begin{smallmatrix} 11 & 41 & 25.04 \end{smallmatrix}$	$+0.014$	-0.233	$+0.060$	$+0.021$	-0.003	34.24	$+9.12$
31	γ Ursæ Majoris	20	$\begin{smallmatrix} 11 & 46 & 13.51 \end{smallmatrix}$	$+0.007$	-0.256	$+0.068$	$+0.012$	$+0.041$	22.57	$+8.94$
32	Boss 3143	20	$\begin{smallmatrix} 11 & 57 & 39.03 \end{smallmatrix}$	-0.005	-0.276	$+0.055$	-0.007	-0.035	48.09	$+9.05$
33	δ Ursæ Majoris	20	$\begin{smallmatrix} 12 & 11 & 5.27 \end{smallmatrix}$	-0.008	-0.267	$+0.074$	-0.015	$+0.075$	14.51	$+9.11$

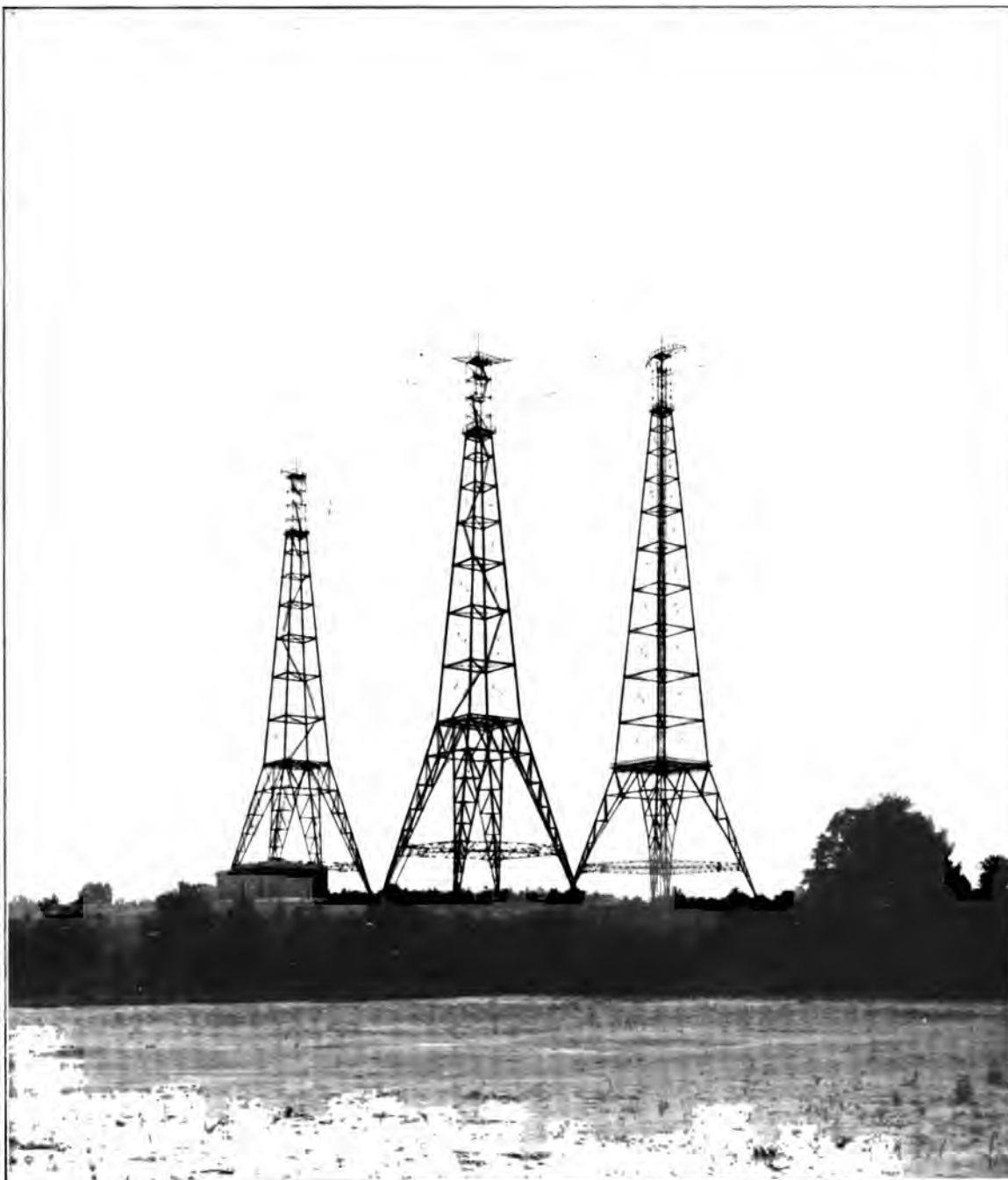
Table X gives for each night the number of clock stars observed by each observer, the mean observed clock correction, the clock correction as derived from the curve as previously explained, with the sidereal times to which they refer, and the hourly rate deduced from the least square solutions covering the different periods. In the case of Washington II it was necessary to subdivide the period into two groups for the clock rate solution. There has also been added a column giving the number of sets of oversea radio signals observed each night.

TABLE X.—*Corrections to Riefler Sidereal Clocks.*

Date.	Washington.							Paris.						
	No. Obs.		Sid. Hour.	Clock Correction.		Hourly Rate.	No. Sets Radio.	No. Obs.		Sid. Hour.	Clock Correction.		Hourly Rate.	No. Sets Radio.
	L.	M.		Observed.	From Curve.			H.	Mg.		Observed.	From Curve.		
1913				s	s	s					s	s	s	
Oct. 28	19	9	1.83	-30.997	-30.997	-0.0216	.	..	..	..	..	..	..	1
29	12	12	1.12	-31.478	-31.491	-0.0216	.	..	..	..	..	..	..	.
30	..	..	1.00	..	-31.997	-0.0216	.	..	..	..	..	..	..	.
31	9	9	1.28	-32.526	-32.519	-0.0217	.	..	..	2.00	..	+5.074	+0.0008	3
Nov. 1	17	14	1.63	-33.028	-33.038	-0.0217	.	13	14	1.55	+5.109	+5.093	+0.0008	.
3	13	1	0.17	-34.002	-34.035	-0.0217	.	..	..	..	..	..	..	.
4	17	15	1.69	-34.573	-34.587	-0.0217	.	..	..	2.00	..	+5.151	+0.0008	2
5	17	16	1.69	-35.136	-35.105	-0.0218	.	9	16	2.44	+5.146	+5.171	+0.0008	.
6	17	17	1.62	-35.634	-35.626	-0.0218	.	1	9	0.13	+5.210	+5.189	+0.0008	.
7	11	..	23.91	-36.069	-36.106	-0.0218	.	17	12	1.38	+5.168	+5.212	+0.0008	1
8	..	..	..	..	..	..	.	2	10	0.96	+5.266	+5.234	+0.0009	.
10	12	5	2.75	37.768	-37.740	-0.0219	.	..	..	..	..	..	..	.
11	11	..	23.92	-38.192	-38.202	-0.0219	.	12	11	1.87	+5.311	+5.300	+0.0009	.
12	10	9	1.90	-38.785	-38.770	-0.0219	.	..	..	..	..	..	..	.
13	8	..	0.22	-39.246	-39.258	-0.0219	.	..	..	2.00	..	+5.349	+0.0009	3
15	..	..	2.00	..	-40.346	-0.0220	2	..	..	2.00	..	+5.395	+0.0009	.
16	..	..	..	..	..	..	.	..	9	1.58	+5.413	+5.416	+0.0009	.
17	15	17	2.25	-41.401	-41.404	-0.0220	.	..	..	2.00	..	+5.437	+0.0009	2
18	17	..	2.66	-41.951	-41.941	-0.0220	.	..	..	..	..	..	..	.
19	15	4	3.58	-42.466	-42.489	-0.0221	1	15	11	2.34	+5.491	+5.476	+0.0009	1
20	14	15	2.96	-42.988	-43.004	-0.0221	2	..	..	2.00	..	+5.495	+0.0009	1
21	17	15	2.95	-43.498	-43.531	-0.0221	1	..	..	2.00	..	+5.513	+0.0009	2
22	17	13	2.80	-44.067	-44.062	-0.0221	1	..	..	2.00	..	+5.532	+0.0010	.
24	16	16	2.87	-45.136	-45.127	-0.0222	1	..	..	2.00	..	+5.564	+0.0010	2
25	11	1	1.88	-45.700	-45.639	-0.0222	2	..	..	2.00	..	+5.584	+0.0010	2
26	..	..	3.00	..	-46.195	-0.0222	2	..	..	2.00	..	+5.602	+0.0010	2
27	..	..	3.00	..	-46.728	-0.0222	2	..	..	2.00	..	+5.620	+0.0010	1
28	..	..	3.00	..	-47.262	-0.0222	.	..	..	2.00	..	+5.601	+0.0010	3
29	..	..	3.00	..	-47.797	-0.0223	.	14	..	2.26	+5.624	+5.662	+0.0010	2
Dec. 3	17	14	3.43	-49.952	-49.952	-0.0224	1	..	..	3.00	..	+5.749	+0.0010	1
4	16	16	3.72	-50.490	-50.497	-0.0224	.	..	..	3.00	..	+5.772	+0.0010	1
5	17	15	3.70	-51.048	-51.040	-0.0224	2	..	..	3.00	..	+5.796	+0.0010	.
6	..	..	4.00	..	-51.586	-0.0224	.	..	..	3.00	..	+5.821	+0.0010	2
8	10	11	4.36	-52.686	-52.676	-0.0224	1	1	16	1.23	+5.852	+5.870	+0.0011	2
9	15	13	4.23	-53.228	-53.213	-0.0225	1	..	..	3.00	..	+5.899	+0.0011	.
10	..	..	4.00	..	-53.748	-0.0225	1	..	..	3.00	..	+5.926	+0.0011	2
11	15	12	4.38	-54.282	-54.287	-0.0225	3	..	..	3.00	..	+5.953	+0.0011	2
12	16	12	4.07	-54.830	-54.815	-0.0225	2	..	..	3.00	..	+5.983	+0.0011	2
13	16	8	4.88	-55.342	-55.362	-0.0226	1	12	18	3.28	+6.031	+6.016	+0.0011	.
15	20	14	4.13	-56.421	-56.401	-0.0226	3	..	..	4.00	..	+6.077	+0.0011	1
16	3	5	2.98	-56.865	-56.908	-0.0226	3	..	..	4.00	..	+6.108	+0.0011	3
17	..	..	4.00	..	-57.468	-0.0226	.	..	..	4.00	..	+6.139	+0.0011	1
18	17	15	4.45	-58.016	-58.015	-0.0227	3	..	..	4.00	..	+6.172	+0.0011	1
19	16	20	4.30	-58.541	-58.550	-0.0227	2	5	12	4.00	+6.185	+6.204	+0.0011	2
20	19	15	4.43	-59.081	-59.099	-0.0227	2	11	24	2.66	+6.230	+6.234	+0.0011	3
22	..	11	2.59	-60.190	-60.159	-0.0227	2	..	..	4.00	..	+6.303	+0.0012	.
23	15	5	3.67	-60.766	-60.737	-0.0228	2	3	6	5.16	+6.351	+6.337	+0.0012	2
26	10	9	4.93	-62.401	-62.419	-0.0228	2	..	..	5.00	..	+6.441	+0.0012	.
27	17	14	4.88	-62.956	-62.965	-0.0229	2	..	..	5.00	..	+6.476	+0.0012	.
29	17	14	5.21	-4.054	-4.068	-0.0229	3	..	..	5.00	..	+6.549	+0.0012	2
30	14	16	5.26	-4.627	-4.617	-0.0229	3	..	..	5.00	..	+6.585	+0.0012	2
31	7	..	4.74	-5.147	-5.149	-0.0229	3	8	..	2.29	+6.637	+6.619	+0.0012	3

TABLE X.—*Corrections to Riefler Sidereal Clocks*—Continued.

Date	Washington.							Paris.						
	No. Obs.		Sid. Hour.	Clock Correction.		Hourly Rate.	No. Sets Radio.	No. Obs.		Sid. Hour.	Clock Correction.		Hourly Rate.	No. Sets Radio.
	H.	M.		Observed.	From Curve.			L.	M.		Observed.	From Curve.		
1914														
Jan. 21	9	..	5.13	-16.145	-16.145	-0.0213	.	13	3	8.14	+7.583	+7.556	+0.0014	3
22	..	..	6.00	.....	-16.702	-0.0211	1	17	12	6.79	+7.584	+7.598	+0.0014	2
23	..	..	6.00	.....	-17.229	-0.0209	1	13	12	7.24	+7.652	+7.646	+0.0015	3
24	..	..	6.00	.....	-17.752	-0.0208	1	16	14	6.90	+7.670	+7.687	+0.0015	1
26	1	11	5.61	-18.730	-18.743	-0.0204	3	..	..	7.00	.....	+7.775	+0.0016	2
27	11	13	7.34	-19.286	-19.262	-0.0202	.	..	..	7.00	.....	+7.819	+0.0016	2
28	14	12	7.34	-19.754	-19.739	-0.0200	1	..	..	7.00	.....	+7.862	+0.0016	3
29	9	14	7.56	-20.198	-20.209	-0.0199	2	..	..	7.00	.....	+7.907	+0.0017	1
30	..	..	7.00	.....	-20.662	-0.0197	3	..	..	7.00	.....	+7.948	+0.0017	3
Feb. 1	13	11	7.38	-21.138	-21.129	-0.0195	3	11	10	7.56	+8.025	+7.990	+0.0017	2
2	14	15	7.37	-22.026	-22.038	-0.0191	3	13	12	7.38	+8.047	+8.066	+0.0018	.
3	10	11	7.10	-22.487	-22.482	-0.0190	1	14	11	7.27	+8.124	+8.104	+0.0018	2
4	10	..	5.85	-22.901	-22.905	-0.0188	.	13	16	7.47	+8.112	+8.142	+0.0019	1
5	..	..	7.00	.....	-23.369	-0.0186	.	16	12	7.39	+8.180	+8.180	+0.0019	3
7	12	12	7.52	-24.270	-24.259	-0.0182	2	..	..	8.00	.....	+8.264	+0.0020	2
9	11	12	7.83	-25.117	-25.126	-0.0179	2	1	3	8.02	+8.302	+8.351	+0.0020	2
10	..	..	8.00	.....	-25.556	-0.0178	3	14	8	7.53	+8.379	+8.395	+0.0021	2
11	15	12	8.24	-25.975	-25.983	-0.0177	1	..	..	8.00	.....	+8.442	+0.0021	.
12	..	..	8.00	.....	.....	.....	.	6	11	7.16	+8.505	+8.492	+0.0021	.
14	..	..	8.00	.....	-27.251	-0.0175	3	..	..	8.00	.....	+8.603	+0.0022	.
16	..	..	8.00	.....	-28.105	-0.0174	2	..	..	8.00	.....	+8.711	+0.0023	2
17	15	10	8.64	-28.528	-28.545	-0.0174	2	15	5	7.49	+8.752	+8.765	+0.0023	3
18	..	..	8.00	.....	-28.965	-0.0173	2	..	..	8.00	.....	+8.824	+0.0023	2
19	..	..	8.00	.....	-29.400	-0.0173	.	..	..	8.00	.....	+8.882	+0.0024	3
20	..	..	8.00	.....	-29.840	-0.0173	2	..	..	8.00	.....	+8.943	+0.0024	2
21	14	13	8.65	-30.292	-30.290	-0.0173	.	..	..	8.00	.....	+9.001	+0.0024	2
24	8	8	7.71	-31.620	-31.587	-0.0174	.	14	8	8.78	+9.193	+9.186	+0.0025	.
25	..	..	9.00	.....	-32.048	-0.0174	2	2	4	8.32	+9.273	+9.250	+0.0026	1
26	10	11	9.00	-32.464	-32.476	-0.0175	2	20	..	9.95	+9.302	+9.318	+0.0026	2
27	13	12	9.28	-32.917	-32.910	-0.0175	.	12	14	9.26	+9.380	+9.380	+0.0026	1
28	..	..	.....	.....	.....	.....	.	13	12	9.30	+9.439	+9.446	+0.0027	.
Mar. 2	..	..	.....	.....	.....	.....	.	14	14	9.44	+9.589	+9.576	+0.0027	.
3	..	11	7.39	-34.588	-34.585	-0.0176	.	..	..	.....	.....	.....	.....	.
4	13	13	9.60	-35.036	-35.046	-0.0176	.	..	..	.....	.....	.....	.....	.
5	..	..	9.00	.....	-35.457	-0.0177	.	..	..	.....	.....	.....	.....	.
7	15	11	9.78	-36.294	-36.314	-0.0177	.	..	..	8.00	.....	+9.770	+0.0028	2
9	1	13	8.11	-37.150	-37.122	-0.0178	.	..	..	.....	.....	.....	.....	.
10	12	..	8.53	-37.548	-37.546	-0.0178	.	..	..	.....	.....	.....	.....	.
11	..	..	9.00	.....	-37.972	-0.0179	.	..	..	.....	.....	.....	.....	.
12	10	13	8.82	-38.405	-38.385	-0.0179	.	..	..	.....	.....	.....	.....	.
13	12	8	9.04	-38.810	-38.809	-0.0179	.	..	..	.....	.....	.....	.....	.
14	11	12	8.91	-39.196	-39.227	-0.0180	.	..	..	.....	.....	.....	.....	.
16	..	..	9.00	.....	-40.085	-0.0180	.	..	..	.....	.....	.....	.....	.
17	..	..	9.00	.....	-40.516	-0.0181	.	..	..	.....	.....	.....	.....	.
18	10	6	8.87	-40.956	-40.946	-0.0181	.	..	..	.....	.....	.....	.....	.
19	..	..	9.00	.....	-41.383	-0.0181	.	..	..	.....	.....	.....	.....	.
20	11	10	9.26	-41.809	-41.821	-0.0182	.	..	..	.....	.....	.....	.....	.
21	..	..	9.00	.....	-42.255	-0.0182	.	..	..	.....	.....	.....	.....	.
23	10	7	9.80	-43.140	-43.145	-0.0182	.	..	..	.....	.....	.....	.....	.
24	10	10	9.49	-43.576	-43.579	-0.0183	.	..	..	.....	.....	.....	.....	.
25	..	..	9.00	.....	-44.012	-0.0183	.	..	..	.....	.....	.....	.....	.
26	10	11	9.77	-44.467	-44.469	-0.0183	.	..	..	.....	.....	.....	.....	.
30	..	..	9.00	.....	-46.242	-0.0185	.	..	..	.....	.....	.....	.....	.
Apr. 3	8	11	10.50	-48.071	-48.071	-0.0186	.	..	..	.....	.....	.....	.....	.



RADIO STATION, RADIO, VIRGINIA.

THE RADIO EQUIPMENT.

The radio observers were all proficient radio operators, having had considerable experience on board ships of the United States Navy. In preparation for this particular work they practiced at the Naval Observatory for several weeks in the taking of coincidences, employing an arrangement of improvised apparatus by which the conditions of actual work were closely simulated.

The antennæ at Radio and at Paris were adapted for the use of practically the same fundamental wave length—namely, 2,150 meters. That at Radio is a flat top T antenna, composed of three flat sections, each section being approximately 400 feet long. The effective height is about 520 feet, though one end reaches the height of 630 feet. The Eiffel Tower antenna is of the umbrella type, consisting of six wires suspended from the Eiffel Tower at a height of 900 feet and extending diagonally to points about 300 or 400 feet from the base of the tower.

The receiving apparatus was the regular 1913 wireless specialty receiving set, with PICKARD head phones and galena crystal for the detector.

The sending apparatus at Radio was a 100-kilowatt spark gap transmitting set, 500 cycle. That at Eiffel Tower was an 18-kilowatt, 60-cycle transmitter. In each case the key was operated by a relay controlled by a transmitting clock. The clocks used for this purpose were made by L. LEROY & Cie., of Paris, and were of a type especially designed for the distribution of time signals and for the control of other clock dials. The pendulum terminates in a magnet whose axis is perpendicular to the pendulum and lies in the plane of its swing. One pole of the magnet oscillates freely in the coil of an electromagnet at the left, from which it receives an impulse at each double oscillation, the necessary electric connections being made by the clockwork and the current being furnished by a small battery.

The wave length used for the exchange of signals was 2,500 meters, and the average power used at Radio was 70 kilowatts. At Paris the power employed was much less.

The signals sent from Radio and received at Eiffel Tower were very clear, though varying in intensity from night to night. At times the intensity was remarkable. Static at the Eiffel Tower was almost continuous, and interference from commercial stations was a serious difficulty. The signals from Eiffel Tower received at Radio were very feeble; and, because of their low frequency, 60 cycles, they closely resembled the sounds produced by the static.

THE PROGRAM AND METHODS OF THE RADIO WORK.

At each station the program of the radio work was essentially the same. At Radio, for example, the LEROY clock controlled the emission apparatus so as to send out three series of 420 signals, called rhythmic signals, omitting for purposes of identification the 60th, 120th, 180th, 240th, 300th, and 360th signals.

As the LEROY transmitting clock did not automatically omit any signals, it was necessary for one of the radio observers to effect these omissions by the manipulation of a switch in the circuit from this clock to the sending apparatus. The omitted seconds are referred to as interruptions.

The intervals between successive signals were approximately 0^s99 mean time, and each signal was about 0^s5 long, a long signal being considered better than a short one by the radio observers when working with faint signals. This made it

necessary for the radio observer to concentrate his attention on the beginning of the signal. In order to increase the number of coincidences that could be observed in the limited time during which uninterrupted use of the ether could be secured, it was planned to compare the rhythmic signals with an intermediary mean-time chronometer beating half-seconds at each station instead of with the observatory standard clocks which emitted signals only once in two seconds. The chronometer was compared by the radio observer with the observatory clock before and after the radio work, which usually occupied a little over an hour. During this period dependence was placed on the rate of the chronometer. All these comparisons were made by the coincidence method by ear by the use of telephone receivers. The principle underlying such comparisons is essentially the same as that of the vernier, in this case coincidence of divisions of time being established by ear and in the case of the vernier the coincidence of divisions of space being established by the eye. When comparing the rhythmic signals with the chronometer, coincidences took place about once in 50 seconds, and in the case of emission signals generally seven or eight were observed in a series. In comparing the chronometer with the observatory clock, coincidences took place about once in three minutes and in general four were observed in each comparison.

The work of the radio observer was to listen, for example, to the rhythmic and chronometer beats in his telephone receivers and to note by the chronometer face the time of a coincidence of beats, to record this, and then, picking up the count from the chronometer but counting on the rhythmic beats, to count up to the next omitted signal in the rhythmic series, called an interruption, to record this, then to observe the next coincidence, and so on to the end of the series. By means of an induction coil the chronometer signals were reduced in intensity, when necessary, until they were of about the same faintness as the radio signals. The observation of the interruptions was especially difficult in the case of the over-sea signals, since many of these signals were not heard. However, if one interruption in a series was observed, the rest could readily be supplied; and, even if none was observed, it was an easy matter to supply them all, assuming that the longitude was already approximately known.

By means of the records of the coincidences and of the interruptions it was possible to determine from each observed coincidence the chronometer time of any signal in the series of rhythmic signals which might be selected as the reference signal. This was done for each coincidence and the mean was used. In order to eliminate from the mean the effect of error in the adopted rate of gain of the emitting clock on the comparing clock, due to errors of observation, the signal whose number in the series corresponds to the mean of the numbers of the signals at which coincidences were observed should be taken as the reference signal. As this number is different for the two stations, the signal corresponding to the mean of the two numbers was used as the reference signal, thus rendering such errors negligible, though not completely eliminating them.

Having thus determined the chronometer time of a certain reference signal in a series, this was transposed into RIEFLER clock time by means of the comparisons between the chronometer and the clock and was then transposed into local sidereal

time by the application of the clock correction. In the cases where the rhythmic signals were observed at both stations we have, then, the local sidereal time of a given reference signal at each station, and the difference is the longitude except as affected by transmission time, the effect of which is to make the longitude determined by signals emanating from Washington too large and those determined by signals from Paris too small by the time occupied in transmission.

In order to make the process clear the following example is given. The work can be much abridged in practice:

1914, January 28:

Second series of rhythmic signals from Radio, Va.

Observations at Radio, Va., to determine the emission time.

RIEFLER clock comparisons: Observer, GILLESPIE.

The average interval between alternate coincidences was approximately 363 seconds as noted by the chronometer. During this interval the RIEFLER clock gained one second, therefore the number of seconds in any interval as indicated by the clock is to be decreased by $1/364$ to get the number of chronometer seconds. The column "Interval" gives the number of seconds from each coincidence to the selected reference zero of the RIEFLER clock, which for the first comparison is $3^h 37^m 0^s$, and for the second is $4^h 56^m 0^s$.

Chronometer time of—		Face of Washington RIEFLER.	Interval.		Chronometer Time of Reference Zero.	Mean.
Coinci- dence.	RIEFLER Zero Second.		Clock Seconds.	Chronome- ter Seconds.		
h m s	h m s	h m s	s	s	h m s	h m s
7 33 42	7 33 44	3 31 0	+362	+361.005	7 39 43.005	
7 36 43.5	7 36 43.5	3 34 0	+180	+179.505	43.005	
7 39 41	7 39 43	3 37 0	+ 2	+ 1.995	42.995	7 39 42.999
7 42 42.5	7 42 42.5	3 40 0	-180	-179.505	42.995	
7 45 45	7 46 42	3 44 0	-363	-362.003	42.997	
8 55 8.5	8 55 30.5	4 53 0	+202	+201.445	8 58 29.945	
8 58 10	8 58 30	4 56 0	+ 20	+ 19.945	29.945	8 58 29.947
9 1 13.5	9 1 29.5	4 59 0	-164	-163.549	29.951	

The following method has been used to determine from the above data the RIEFLER clock time of any given chronometer time in the vicinity of the clock comparisons upon the hypothesis that the rates of the two timepieces are uniform:

Let C_0 and R_0 = the chronometer and RIEFLER times at first comparison.

C_x and R_x = the chronometer and RIEFLER times at any other instant.

T_x = the correction from Table III of the American Ephemeris and Nautical Almanac to convert mean solar into sidereal time for the interval $C_x - C_0$.

ΔC = a correction for relative rate.

Then $R_x = R_0 + C_x - C_0 + T_x + \Delta C(C_x - C_0)$.

ΔC is to be determined by the comparison of the second with the first clock comparison.

In the above example $\Delta C = +0^s.00140$ per minute.

Observations of rhythmic signals (emission): Observer, COFFMAN.

The average interval between alternate coincidences was $103^s.0$ as noted by the chronometer. During this interval the rhythmic signals gained one second; therefore the number of seconds in any interval as indicated by the rhythmic signals must be decreased by $1/104.0$ to get the number of chronometer seconds.

It is to be noted that Messrs. COFFMAN and GILLESPIE habitually recorded the chronometer times of the signals immediately preceding the interruptions instead of the times of the interruptions.

Chronometer Time of—		Serial No. of Interrup- tion.	Interval from Coinci- dence to Signal No. 250.		Chronometer Time of Reference Signal No. 250.	Mean.
Coinci- dence.	Interrup- tion.		Rhyth- mic Seconds.	Chronome- ter Seconds.		
h m s	h m s		s	s	h m s	h m s
8 18 56.5	8 19 23.5	119	+158	+156.480	8 21 32.980	8 21 32.975
8 19 47	8 20 23	179	+107	+105.971	32.971	
8 20 39.5	8 21 22.5	239	+54	+53.481	32.981	
8 21 29	8 22 21.5	299	+4	+3.962	32.962	
8 22 21.5	8 23 21	359	-49	-48.529	32.971	
8 23 14	8 24 21.5	420	-102	-101.019	32.981	
8 24 5.5			-154	-152.519	32.981	

Chronometer time of reference signal, $C_x = 8\ 21\ 32.975$
 Chronometer time of RIEFLER comparison, $C_o = 7\ 39\ 42.999$

$$C_x - C_o = 0\ 41\ 49.976$$

$$T_x = + 6.872$$

$$\Delta C(C_x - C_o) = + 0.059$$

RIEFLER clock time of RIEFLER comparison, $R_o = 3\ 37\ 0.000$

RIEFLER clock time of reference signal, $R_x = 4\ 18\ 56.907$
 Correction to Washington RIEFLER clock, $= -19.679$

Washington sidereal time of reference signal, $= 4\ 18\ 37.228$

1914, January 28:

Second series of rhythmic signals from Radio, Va.

Observations at Eiffel Tower, Paris, to determine the reception time.

RIEFLER clock comparisons: Observer SAUNDERS.

The average interval between alternate coincidences was approximately 369 seconds as noted by the chronometer; therefore the number of seconds in any interval as indicated by the clock is to be decreased by 1/370 to get the number of chronometer seconds. The column "Interval" gives the number of seconds from each coincidence to the selected reference zero of the RIEFLER clock, which for the first comparison is $9^h\ 1^m\ 0^s$ and for the second is $10^h\ 17^m\ 0^s$.

Chronometer time of—		Face of Paris RIEFLER.	Interval.		Chronometer Time of Reference Zero.	Mean.
Coinci- dence.	RIEFLER Zero Second.		Clock Seconds.	Chronome- ter Seconds.		
h m s	h m s	h m s	s	s	h m s	h m s
12 20 0	12 20 56	8 59 0	+176	+175.524	12 32 55.524	12 22 55.525
12 23 3.5	12 23 55.5	9 2 0	-8	-7.978	55.522	
12 26 11	12 26 55	9 5 0	-196	-195.470	55.530	
13 33 52	13 34 44	10 13 0	+292	+291.211	13 38 43.211	13 37 43.208
13 36 55.5	13 37 43.5	10 14 0	+108	+107.708	43.208	
13 39 59	13 40 43	10 19 0	-76	-75.795	43.205	
13 43 4.5	13 43 42.5	10 22 0	-262	-261.292	43.208	

$$\Delta C = -0.00177 \text{ per minute.}$$

Observations of rhythmic signals (reception): Observer SAUNDERS.

The average interval between alternate coincidences was 103^s.2 as noted by the chronometer; therefore the number of seconds in any interval as indicated by the rhythmic signals must be decreased by 1/104.2 to get the number of chronometer seconds.

Chronometer Time of—		Serial No. of Interrup- tion.	Interval from Coinci- dence to Signal No. 250.		Chronometer Time of Reference Signal No. 250.	Mean.
Coinci- dence.	Interrup- tion.		Rhyth- mic Seconds.	Chronome- ter Seconds.		
h m s	h m s		s	s	h m s	h m s
12 55 24.5	12 55 47.5	120	+153	+151.531	12 57 56.031	12 57 56.030
12 56 16	12 56 47	180	+101	+100.030	56.030	
12 57 7.5	12 57 46.5	240	+49	+48.530	56.030	
12 57 59	12 58 46	300	-3	-2.971	56.029	
12 58 50.5	.....	.....	-55	-54.472	56.028
12 59 42	12 59 45	360	-107	-105.973	56.027	
13 0 34.5	13 0 44.5	420	-160	-158.464	56.036	

Chronometer time of reference signal, $C_x = 12\ 57\ 56.030$
 Chronometer time of RIEFLER comparison, $C_o = 12\ 22\ 55.525$

$$C_x - C_o = 0\ 35\ 0.505$$

$$T_x = +5.752$$

$$\Delta C(C_x - C_o) = -0.062$$

$$= 0\ 35\ 6.195$$

RIEFLER clock time of RIEFLER comparison, $R_o = 9\ 1\ 0.000$

RIEFLER clock time of reference signal, $R_x = 9\ 36\ 3.195$
 Correction to Paris RIEFLER clock, $= +7.866$

Paris sidereal time of reference signal, $= 9\ 36\ 14.061$
 Washington sidereal time of reference signal, $= 4\ 18\ 37.228$

Longitude, uncorrected for transmission time, $= 5\ 17\ 36.833$
 Correction for transmission time, $= -0.021$

Longitude, $= 5\ 17\ 36.812$

The following are the probable errors of the deduced time of the reference signal depending on a single observation of a coincidence for the different radio observers, as derived from the results of the separate coincidences of a series:

TABLE XI.—Probable Errors of Radio Observers.

	RIEFLER Compari- son.	Emission Signals.	Reception Signals.
	s	s	s
COFFMAN	± 0.0032	± 0.0057	± 0.0118
GILLESPIE	± 0.0031	± 0.0070	± 0.0150
SAUNDERS	± 0.0026	± 0.0050	± 0.0093
LAVENDER	± 0.0033	± 0.0061	± 0.0109

It is evident that the principal source of error lies in the observation of the reception signals, as was to be expected on account of their extreme feebleness. In combining the work of the different observers that of GILLESPIE was given half weight.

The above probable errors give for the probable error due to the radio work of a longitude from one series of signals observed under average conditions with four RIEFLER coincidences, seven emission coincidences, and four reception coincidences, ± 0.006 , but by intercomparing the results from different series observed on the same night the following probable errors for a series were obtained:

COFFMAN	^s ± 0.023
GILLESPIE	± 0.029
SAUNDERS	± 0.018
LAVENDER	± 0.020

This seems to indicate that there is considerable systematic error in each series, perhaps due to the fact that an observer after having secured the first coincidence knew just when to expect the next ones and was unconsciously somewhat influenced by that knowledge. It would perhaps have been a better plan to have recorded the coincidences and interruptions on a chronograph and to thus have avoided counting entirely.

From the nature of the comparisons, a long radio signal with a short chronometer tick, there was evidently the possibility of considerable personal equation. In fact, there seems to have been at each station a range of several seconds between the different observers in the average times of getting coincidences. Assuming that these personal equations remained constant, their effect was eliminated by the interchanges of observers. Even if they did not remain constant, it is probable that the changes were relatively small and that the effect of personal equation has been very largely eliminated.

As Messrs. COFFMAN and GILLESPIE frequently observed the same series, it is possible to determine their relative personal equations directly. It is also possible to deduce the relative personal equations of Messrs. SAUNDERS and LAVENDER by indirect methods. The following are the results, COFFMAN and LAVENDER, in general, getting coincidences later than GILLESPIE and SAUNDERS. These personal equations have not been used in the reductions.

TABLE XII.—*Corrections for Relative Personal Equations of Radio Observers.*

	COFFMAN- GILLESPIE.	LAVENDER- SAUNDERS.
	^s	^s
I. Emission.....	+0.014	+0.017
I. Reception.....	+0.021	+0.003
II. Emission.....	+0.007	-0.001
II. Reception.....	+0.007	0.000

THE RESULTS OF THE RADIO OBSERVATIONS.

Table XIII gives the results of the work of the radio observers for each series of comparisons for all the nights when the data was needed.

The designations of the observers are as follows:

C. = R. B. COFFMAN.
 G. = G. S. GILLESPIE.
 Lv. = R. A. LAVENDER.
 S. = H. E. SAUNDERS.

TABLE XIII.—*Chronometer Comparisons.*

AT RADIO, VA.

Date.	Observer.	With RIEFLER Standard Clock.				With Radio Signals from LEROY Clock at Radio, Va.				With Radio Signals from LEROY Clock at Eiffel Tower, Paris.					
		Coincidences.	Interruptions.	Reference Second of RIEFLER.	Chronometer Time of Reference Second.	Series No.	Coincidences.	Interruptions.	Refer- ence Signal.	Chronometer Time of Reference Signal.	Series No.	Coincidences.	Interruptions.	Refer- ence Signal.	Chronometer Time of Reference Signal.
1913				h m s	h m s				h m s						h m s
Oct. 28	S.	3	3	22 26 0	8 32 32.143	1	8	5	209	8 15 17.748					
	S.	4	4	23 36 0	9 42 20.607	3	7	7	214	8 55 20.353					
30	S.	1	1	21 47 0	7 45 44.582	1	6	5	246	8 15 53.747					
	S.	2	2	23 30 0	9 28 27.602	2	7	7	211	8 35 22.359					
	S.					3	7	6	173	8 54 59.927					
31	Lv.	3	3	21 29 0	7 23 50.584	2	7	7	253	8 35 59.853					
	Lv.					3	7	16	230	8 55 35.453					
Nov. 3	Lv.	3	3	22 2 0	7 44 54.654	1	8	4	212	8 15 15.755					
	Lv.	5	4	23 24 0	9 6 41.147	3	7	6	217	8 56 11.927					
4	S.	2	2	22 15 0	7 53 55.511	1	9	7	210	8 15 15.003					
	S.	3	3	23 24 0	9 2 44.150	2	8	7	221	8 35 24.246					
	S.					3	7	7	173	8 54 35.120					
7	Lv.	2	2	22 38 0	8 5 0.549	3	8	25	236	8 55 38.932					
	Lv.	4	4	23 42 0	9 8 49.995										
10	Lv.	4	4	22 22 0	7 37 12.140	1	7	5	194	8 14 59.000					
	Lv.	4	4	23 50 0	9 4 57.660	2	8	5	201	8 35 9.247					
	Lv.					3	7	5	215	8 55 21.432					
12	Lv.	3	3	23 14 0	8 21 9.531	1	6	3	225	8 15 25.674					
	Lv.	5	2	23 56 0	9 3 2.611	2	6	4	252	8 35 50.753					
	Lv.					3	8	15	233	8 55 35.251					
13	S.	4	3	22 48 0	7 51 16.614	1	4	3	264	8 16 24.683					
	S.	4	4	23 58 0	9 1 5.074	2	8	6	210	8 35 4.800					
	S.					3	8	7	254	8 55 46.735					
15	S.	4	4	22 57 0	7 52 20.220						1	7	1	248	8 2 46.840
	S.	4	4	0 13 0	9 8 7.674						3	2	1	161	8 44 19.238
17	Lv.	3	3	23 2 0	7 49 24.658	1	7	5	233	8 15 25.638					
	Lv.	4	4	0 21 0	9 8 11.627	2	7	6	181	8 34 32.497					
	Lv.					3	7	7	252	8 55 46.100					
19	Lv.	4	4	23 10 0	9 49 28.622	1	5	5	143	8 13 52.698	3	2	1	226	8 45 19.084
	Lv.	5	4	0 29 0	7 8 15.580	2	7	6	231	8 35 18.216					
	Lv.					3	6	5	207	8 54 57.738					
20	S.	2	2	23 17 0	7 52 30.055	1	7	6	220	8 15 9.497	1	4	3	256	8 2 47.774
	S.	4	4	0 33 0	9 8 17.510	2	8	7	225	8 35 17.750	3	3	4	198	8 44 49.864
	S.					3	7	7	258	8 55 48.772					
21	Lv.	5	4	23 18 0	7 49 32.507	1	8	6	180	8 14 29.503	1	2	1	233	8 2 25.581
	Lv.	5	5	0 43 0	9 14 18.478	3	8	7	211	8 55 1.833					
22	S.	4	2	23 52 0	8 19 29.569	1	8	6	231	8 15 24.249	1	4	2	198	8 1 49.199
	S.	3	4	0 40 0	9 7 21.652	2	8	7	214	8 35 5.754					
	S.					3	7	6	180	8 54 30.427					
24	S.	2	2	23 49 0	8 8 35.585	1	5	4	226	8 15 17.047	1	3	2	230	8 2 17.664
	S.	5	5	0 56 0	9 15 24.534	2	7	7	255	8 35 44.070					
	S.					3	8	7	216	8 55 3.756					
25	Lv.	4	4	23 24 0	7 39 42.162	1	6	4	213	8 15 0.886					
	Lv.	4	4	0 49 0	9 4 28.131	2	8	6	208	8 34 54.249	1	3	0	290	8 3 17.155
	Lv.					3	6	4	221	8 55 5.438	3	3	1	265	8 45 50.996
26	S.	5	5	0 59 0	9 10 29.043	1	6	5	278	8 16 2.906	1	4	1	272	8 2 58.189
	S.					2	7	6	251	8 35 34.496	3	4	5	219	8 45 5.561
	S.					3	8	7	224	8 55 6.090					
27	S.	4	4	23 42 0	7 49 44.306	1	8	6	240	8 15 23.116	1	3	3	150	8 0 55.885
	S.	4	4	1 10 0	9 17 29.787						3	3	1	205	8 44 51.037
28	Lv.	4	4	23 46 0	7 49 46.262	1	5	2	188	8 13 35.057					
	Lv.	4	4	1 14 0	9 17 31.748	2	7	5	245	8 34 29.784					
29	Lv.	4	4	23 55 0	7 54 47.384	1	7	6	223	8 16 1.207					
	Lv.	4	3	1 18 0	9 17 33.687	2	6	4	284	8 36 0.516					
Dec. 3	S.	2	2	0 4 0	7 47 56.520	1	8	7	219	8 13 1.279	2	6	1	224	8 32 5.132
	S.	4	4	1 13 0	8 56 45.130	2	7	7	207	8 21 49.147					
	S.					3	7	7	220	8 42 0.355					
4	Lv.	4	4	23 59 0	7 39 0.042	1	7	5	235	8 13 15.163					

¹ One changed -1°0.² One changed +1°0.³ One changed +0°5.⁴ Changed -33°0.

TABLE XIII.—*Chronometer Comparisons—Continued.*

AT RADIO, VA.—Continued.

Date.	Observer.	With RIEFLER Standard Clock.				With Radio Signals from LEROY Clock at Radio, Va.				With Radio Signals from LEROY Clock at Eiffel Tower, Paris.						
		Coincidences.	Interruptions.	Reference Second of RIEFLER.	Chronometer Time of Reference Second.	Series No.	Coincidences.	Interruptions.	Refer- ence Sig- nal.	Chronometer Time of Reference Signal.	Series No.	Coincidences.	Interruptions.	Refer- ence Sig- nal.	Chronometer Time of Reference Signal.	
1913 Dec.	4	Lv.	4	4	h m s 1 21 0	9 0 46.516	2	8	6	200	h m s 8 21 40.255				h m s	
		Lv.					3	5	5	177	8 41 15.798					
	5	S.	2	2	0 13 0	7 49 0.335						2	8	7	199	8 31 38.281
		S.	5	5	1 43 0	9 18 45.482						3	3	2	204	8 51 47.328
	6	Lv.	4	4	0 17 0	7 49 2.288	1	8	6	232	8 13 9.431					
		Lv.	4	4	1 42 0	9 13 48.270	2	7	7	221	8 21 58.269					
		Lv.					3	7	5	188	8 41 23.927					
	8	Lv.	4	4	0 18 0	7 42 7.533	1	7	5	217	8 12 49.283	3	3	3	288	8 53 3.123
		Lv.	4	4	1 49 0	9 12 52.537	2	6	5	153	8 20 45.637					
		Lv.					3	7	4	210	8 41 45.360					
	9	S.	3	3	0 22 0	7 42 9.634	1	8	7	232	8 13 12.754	2	4	4	203	8 31 38.694
		S.	5	5	1 47 0	9 6 55.617	2	7	6	203	8 21 43.788					
		S.					3	8	6	195	8 41 29.250					
	10	Lv.	5	5	0 21 0	7 37 12.540	1	6	4	247	8 13 15.999	1	4	2	125	8 1 17.554
		Lv.	6	5	1 55 0	9 10 57.042	2	5	6	221	8 21 49.991					
		Lv.					3	6	5	240	8 42 7.170					
	11	S.	2	2	0 34 0	7 46 13.152	1	8	7	233	8 13 4.647	1	7	5	215	8 2 51.291
		S.	4	4	1 59 0	9 10 59.123	2	6	6	149	8 20 41.228	2	6	6	188	8 31 24.353
		S.					3	7	7	258	8 42 32.501	3	5	2	210	8 51 45.324
	12	Lv.	4	4	0 39 0	7 47 15.051	1	4	4	199	8 12 39.678	1	4	4	176	8 2 10.026
		Lv.	4	3	2 10 0	9 18 0.041	2	8	5	222	8 21 57.252	2	4	4	239	8 32 13.299
		Lv.					3	5	4	230	8 42 8.456					
	13	S.	4	4	0 40 0	7 44 11.654	1	7	6	233	8 13 0.496	1	5	2	239	8 3 4.772
		S.	4	4	2 14 0	9 17 56.148	2	8	7	235	8 21 57.248					
		S.					3	8	7	208	8 41 33.753					
	15	S.	3	3	0 49 0	7 45 15.130	1	5	3	297	8 14 46.093	1	2	0	181	8 2 4.325
		S.	6	6	2 11 0	9 7 1.586	2	8	7	194	8 21 19.255	2	6	5	232	8 32 5.549
		S.					3	8	7	226	8 41 49.251	3	5	4	264	8 52 25.475
	16	Lv.	3	2	1 2 0	7 54 15.516	1	8	5	211	8 12 32.748	1	3	0	125	8 1 8.356
		Lv.	4	4	2 34 0	9 26 0.328	2	8	5	210	8 21 31.478	2	7	2	234	8 31 56.104
		Lv.					3	7	5	214	8 41 38.680	3	5	3	203	8 51 25.537
	17	Lv.	4	4	0 50 0	7 38 20.072	1	4	4	255	8 12 27.750					
		Lv.	4	4	2 27 0	9 15 4.069	2	3	3	333	8 23 59.006					
		Lv.					3	6	5	214	8 41 34.679					
	18	S.	5	5	0 54 0	7 38 22.106	1	7	7	200	8 12 23.503	1	4	4	253	8 3 13.536
		S.	4	4	2 34 0	9 18 5.620	2	8	7	208	8 21 31.153	2	6	6	236	8 31 56.498
		S.					3	8	7	228	8 41 49.250	3	8	6	213	8 51 33.828
	19	Lv.	4	3	1 11 0	7 51 21.941	1	6	4	220	8 12 39.559	1	6	1	234	8 3 1.892
		Lv.	5	3	2 35 0	9 15 8.091	2	8	6	199	8 21 18.495	3	5	5	207	8 51 27.302
		Lv.					3	7	6	192	8 41 9.857					
	20	S.	3	3	1 8 0	7 44 25.161	1	7	7	252	8 13 7.872	2	7	4	213	8 31 31.884
		S.	4	4	2 42 0	9 18 9.653	2	3	3	125	8 20 1.827	3	3	2	120	8 49 59.860
		S.					3	8	6	215	8 41 29.249					
	22	Lv.	4	4	1 13 0	7 41 29.664	1	5	4	310	8 14 6.002	1	7	5	211	8 2 29.710
		Lv.	4	4	2 47 0	9 15 14.142	2	6	5	211	8 21 28.670	2	6	4	268	8 32 31.915
		Lv.					3	7	4	208	8 42 23.431					
	23	Lv.	4	2	1 20 0	7 44 31.072	2	6	4	273	8 22 26.309	2	2	5	182	8 30 57.797
		Lv.	4	2	2 54 0	9 18 15.560	3	7	5	182	8 40 54.477	3	4	4	237	8 51 52.326
	26	S.	4	4	1 31 0	7 43 37.128	1	7	7	203	8 12 17.359	1	4	0	160	8 1 35.747
		S.	3	3	3 5 0	9 17 21.628	2	7	7	218	8 21 31.928	2	4	0	226	8 31 45.761
		S.					3	8	5	211	8 41 23.248					
	27	Lv.	5	5	1 30 0	7 38 40.026	1	8	6	208	8 12 17.748	1	4	4	199	8 2 11.518
		Lv.	4	4	3 7 0	9 15 24.021	2	8	5	231	8 21 40.251					
		Lv.					3	6	6	261	8 42 8.251					
	29	S.	4	4	1 46 0	7 47 42.514	1	7	7	243	8 12 49.127	1	7	6	218	8 2 28.818
		S.	4	4	3 17 0	9 18 27.515	2	7	5	227	8 21 32.996	2	2	0	202	8 31 12.785
		S.					3	8	6	232	8 41 36.231	3	5	4	226	8 51 35.740

¹ One changed -2°0.² One changed -9°0.³ One changed +0°5; one changed -0°5.⁴ Changed +1°0.⁵ Changed -1°0.⁶ One changed +0°5.⁷ Two changed +0°5; one changed -0°5.⁸ One changed -0°5.

TABLE XIII.—*Chronometer Comparisons—Continued.*

AT RADIO, VA.—Continued.

Date.	Observer.	With RIEFLER Standard Clock.				With Radio Signals from LEROY Clock at Radio, Va.				With Radio Signals from LEROY Clock at Eiffel Tower, Paris.					
		Coincidences.	Interruptions.	Reference Second of RIEFLER.	Chronometer Time of Reference Second.	Series No.	Coincidences.	Interruptions.	Refer- ence Sig- nal.	Chronometer Time of Reference Signal.	Series No.	Coincidences.	Interruptions.	Refer- ence Sig- nal.	Chronometer Time of Reference Signal.
1913				h m s	h m s				h m s					h m s	
Dec. 30	Lv.	4	3	1 41 0	7 38 46.098	1	7	4	264	8 13 10.622	1	4	12	244	8 2 54.356
	Lv.	6	5	3 18 0	9 15 30.101	2	7	6	267	8 22 13.333	2	5	3	267	8 32 16.954
	Lv.														
31	S.	4	4	1 48 0	7 41 47.664	1	8	7	256	8 13 3.805	3	5	4	210	8 51 20.648
	S.	4	4	3 25 0	9 18 31.654	2	8	7	229	8 21 36.792	1	7	7	211	8 2 21.153
	S.					3	7	7	224	8 41 30.149	2	7	6	224	8 31 32.856
											3	7	3	200	8 51 11.216
1914															
Jan. 21	*	4	4	3 6 0	7 36 29.586	1	6	6	177	8 11 28.126					
	*	3	3	4 28 0	8 58 16.060	2	5	4	225	8 21 14.376					
	*					3	7	6	202	8 40 51.918					
22	G.	5	5	3 11 0	7 37 31.505	1	6	6	221	8 12 12.582	1	3	1	211	8 1 58.673
	G.	3	3	4 33 0	8 59 17.975	2	6	5	268	8 21 55.938					
	G.					3	6	5	221	8 41 9.571					
	C.					1	5	6	221	8 12 12.582					
	C.					2	6	7	268	8 21 55.900					
	C.					3	7	5	221	8 41 9.593					
23	G.	4	4	3 19 0	7 41 32.759	1	8	6	207	8 11 55.726					
	G.	4	4	4 41 0	9 3 19.235	2	8	7	237	8 21 24.157					
	G.					3	6	4	230	8 41 17.526					
	C.					1	8	7	207	8 11 55.755	1	4	1	231	8 2 28.843
	C.					2	8	7	237	8 21 24.169					
	C.					3	7	6	230	8 41 17.520					
24	G.	4	4	3 31 0	7 49 33.323	1	7	7	245	8 12 31.172	1	2	0	256	8 2 43.069
	G.	4	4	4 41 0	8 59 21.774										
	C.					1	8	7	245	8 12 31.189					
26	G.	1	1	3 30 0	7 40 39.033	1	8	5	228	8 12 12.702	1	5	3	187	8 1 31.248
	G.	4	4	4 53 0	9 3 25.320	2	7	7	238	8 21 22.279					
	G.					3	7	6	215	8 40 59.794					
	C.					1	7	7	228	8 12 12.715					
	C.					2	7	7	238	8 21 22.278	2	6	3	242	8 31 23.456
	C.					3	6	5	215	8 40 59.798	3	3	1	273	8 51 57.303
27	C.	4	4	3 38 0	7 44 40.210	1	8	7	213	8 11 56.286					
	C.					3	6	6	208	8 40 52.317					
	G.	4	4	4 57 0	9 3 27.177	1	7	7	213	8 11 56.269					
	G.					3	8	7	208	8 40 52.319					
28	G.	5	5	3 37 0	7 39 42.999	1	7	7	204	8 11 47.679	1	5	2	221	8 2 3.400
	G.					2	7	6	250	8 21 32.958					
	G.					3	7	7	285	8 42 7.910					
	C.	3	3	4 56 0	8 58 29.947	1	8	7	204	8 11 47.710					
	C.					2	7	6	250	8 21 32.975	2	6	6	212	8 30 55.268
	C.					3	7	7	285	8 42 7.918					
29	G.	3	3	3 52 0	7 50 43.003	1	7	6	234	8 12 14.849	1	2	1	146	8 0 46.393
	C.	4	4	5 6 0	9 4 30.790	1	6	5	234	8 12 14.826	3	4	4	203	8 50 44.649
30	G.	3	3	3 53 0	7 47 45.425	1	7	6	227	8 12 7.918	1	3	5	215	8 1 54.279
	G.					2	7	7	203	8 20 44.878					
	G.					3	7	6	210	8 40 52.079	3	6	5	209	8 50 50.214
	C.	4	4	5 10 0	9 4 32.726	1	6	6	227	8 12 7.936					
	C.					2	8	7	203	8 20 44.878	2	7	5	213	8 30 53.120
	C.					3	7	6	210	8 40 52.069	3	7	7	209	8 50 50.219
31	G.	4	4	3 55 0	7 45 47.858	1	6	4	214	8 11 53.262	1	7	6	228	8 2 8.046
	G.	5	5	5 20 0	9 10 33.848	2	8	7	251	8 21 29.614	2	6	4	202	8 30 41.039
	C.										3	2	2	287	8 52 6.338
	C.					1	8	7	214	8 11 53.271	1	4	5	228	8 2 8.054
	C.					2	8	7	251	8 21 29.628	2	5	5	202	8 30 41.060

* Data supplied by French observer.

¹ One changed -0.5; one changed +2.5. ² One changed -4.0; one changed -6.5; one changed -6.0. ³ Changed -8.0. ⁴ Changed -6.0. ⁵ Two changed +0.5; one changed -0.5. ⁶ One changed -1.0; one changed -0.5. ⁷ Changed +5.0. ⁸ One changed -6.0; two changed -1.0; one changed +1.0.

TABLE XIII.—*Chronometer Comparisons—Continued.*

AT RADIO, VA.—Continued.

Date.	Observer.	With RIEFLER Standard Clock.				With Radio Signals from LEROY Clock at Radio, Va.				With Radio Signals from LEROY Clock at Eiffel Tower, Paris.					
		Coincidences.	Interruptions.	Reference Second of RIEFLER.	Chronometer Time of Reference Second.	Series No.	Coincidences.	Interruptions.	Refer- ence Sig- nal.	Chronometer Time of Reference Signal.	Series No.	Coincidences.	Interruptions.	Refer- ence Sig- nal.	Chronometer Time of Reference Signal.
1914 Feb. 2	G.	4	4	h m s 4 6 0	h m s 7 48 51.704	1	7	6	198	h m s 8 11 36.163	1	8	1 ⁶	218	h m s 8 2 6.794
	G.	.	.	.	.	2	7	6	224	8 21 1.627	2	8	2 ⁷	211	8 30 48.774
	G.	3	3	5 20 0	9 2 39.495	3	7	6	198	8 40 36.164	3	4	1 ³	230	8 51 8.681
	C.	.	.	.	.	1	8	7	198	8 11 36.163	.	.	.	.	.
	C.	.	.	.	.	2	8	7	224	8 21 1.623	2	8	7	211	8 30 48.783
	C.	.	.	.	.	3	8	7	198	8 40 36.166	3	6	5	230	8 51 8.688
3	G.	4	4	4 10 0	7 48 53.680	1	4	4	200	8 11 39.592	.	.	.	.	.
	G.	.	.	.	.	2	7	6	230	8 21 10.051	.	.	.	.	.
	G.	.	.	.	.	3	8	6	247	8 41 26.184	.	.	.	.	.
	C.	2	2	5 47 0	9 25 37.695	1	2	3	200	8 11 39.576	.	.	.	.	.
	C.	.	.	.	.	2	8	7	230	8 21 10.047	.	.	.	.	.
	C.	.	.	.	.	3	5	6	247	8 41 26.161	3	3	3 ¹	214	8 50 51.307
4	G.	2	2	4 11 0	7 45 56.319	1	8	7	212	8 11 48.153	.	.	.	.	.
	G.	3	3	5 11 0	8 45 46.434	2	6	4 ⁵	172	8 20 9.245	.	.	.	.	.
	C.	.	.	.	.	1	8	6	212	8 11 48.147	.	.	.	.	.
	C.	.	.	.	.	2	6	5	172	8 20 9.256	.	.	.	.	.
5	G.	4	4	4 14 0	7 44 58.734	1	8	7	206	8 11 42.241	.	.	.	.	.
	G.	4	4	5 24 0	8 54 47.201	2	7	6	266	8 21 41.373	.	.	.	.	.
	G.	.	.	.	.	3	8	6	230	8 41 4.988	.	.	.	.	.
	C.	.	.	.	.	1	8	7	206	8 11 42.236	.	.	.	.	.
	C.	.	.	.	.	2	7	6	266	8 21 41.389	.	.	.	.	.
	C.	.	.	.	.	3	7	6	230	8 41 5.009	.	.	.	.	.
7	G.	3	3	4 28 0	7 51 2.009	1	7	6	227	8 12 0.814	1	4	1	198	8 1 30.768
	G.	.	.	.	.	2	7	6	203	8 20 36.770	.	.	.	.	.
	C.	3	3	5 53 0	9 15 47.993	1	8	7	227	8 12 0.823	.	.	.	.	.
	C.	.	.	.	.	2	8	7	203	8 20 36.777	2	7	5 ⁵	216	8 30 49.290
9	G.	4	4	4 35 0	7 50 6.677	1	6	4 ⁵	266	8 12 39.116	1	6	5	221	8 1 52.686
	G.	3	3	5 46 0	9 0 54.969	2	6	4 ⁶	218	8 20 53.313	.	.	.	.	.
	G.	.	.	.	.	3	7	5	275	8 41 46.044	3	6	4 ⁴	218	8 50 49.150
	C.	.	.	.	.	3	7	7	275	8 41 46.034	3	6	7	218	8 50 49.137
10	G.	.	.	.	.	1	7	3	211	8 11 41.730	1	6	4	246	8 2 18.164
	G.	4	3	6 35 0	9 45 49.837	2	7	7	177	8 20 7.761	2	7	6	219	8 30 51.190
	G.	.	.	.	.	.	.	.	.	.	3	7	6	226	8 50 58.241
	C.	.	.	.	.	1	7	7	211	8 11 41.739	1	5	4	246	8 2 18.164
11	G.	5	5	4 40 0	7 47 11.646	.	.	.	.	.	1	4	2	223	8 1 53.440
	C.	5	5	5 32 0	8 39 3.073	.	.	.	.	.	.	.	.	.	.
14	G.	3	3	4 56 0	7 51 17.962	.	.	.	.	.	1	6	5	248	8 2 19.094
	G.	2	2	5 37 0	8 32 11.220	.	.	.	.	.	2	8	6	219	8 30 47.186
	G.	.	.	.	.	.	.	.	.	.	3	4	1	219	8 50 48.345
	C.	.	.	.	.	.	.	.	.	.	3	8	5	219	8 50 48.368
16	G.	3	3	4 59 0	7 46 23.977	1	8	7	278	8 12 44.883	1	4	0	231	8 1 59.671
	G.	4	4	6 21 0	9 8 10.499	2	5	5	267	8 21 33.667	2	2	1	231	8 30 59.466
	G.	.	.	.	.	3	7	6	210	8 40 37.500	.	.	.	.	.
	C.	3	3	5 1 0	7 44 26.962	1	6	4	222	8 11 48.733	1	2	7 ²	148	8 0 50.590
17	G.	.	.	.	.	2	7	7	226	8 20 53.411	2	6	4	219	8 30 46.868
	C.	4	4	5 45 0	8 28 19.722	3	8	7	224	8 40 50.673	.	.	.	.	.
18	G.	4	4	5 11 0	7 50 28.273	1	6	4 ⁶	260	8 12 29.125	.	.	.	.	.
	G.	3	3	6 22 0	9 1 16.579	2	3	3	183	8 20 12.583	2	5	5	230	8 30 57.475
	G.	.	.	.	.	3	8	7	226	8 40 55.425	3	4	1	230	8 50 56.554
	C.	4	4	5 10 0	7 45 31.282	1	8	7	299	8 13 3.503	.	.	.	.	.
19	C.	3	3	5 54 0	8 29 24.042	2	8	7	241	8 21 5.746	.	.	.	.	.
	C.	.	.	.	.	3	8	7	277	8 41 41.607	.	.	.	.	.
20	G.	3	3	5 20 0	7 51 32.474	1	7	6	247	8 12 12.417	.	.	.	.	.
	G.	3	3	6 33 0	9 4 20.428	2	8	6	230	8 20 55.285	2	2	8 ²	232	8 30 57.906
	G.	.	.	.	.	3	7	2 ⁶	227	8 40 52.502	3	2	9 ¹	234	8 50 59.010

¹ One changed -1st0.² Two changed +1st0.³ Changed +13st0.⁴ One changed +1st0.⁵ One changed -4th0.⁶ Two changed -1st0.⁷ One changed -3rd0.⁸ One changed -6th0; one changed -6th5.⁹ Changed -4th0.

TABLE XIII.—*Chronometer Comparisons—Continued.*

AT RADIO, VA.—Continued.

Date.	Observer.	With RIEFLER Standard Clock.				With Radio Signals from LEROY Clock at Radio, Va.				With Radio Signals from LEROY Clock at Eiffel Tower, Paris.					
		Coincidences.	Interruptions.	Reference Second of RIEFLER.	Chronometer Time of Reference Second.	Series No.	Coincidences.	Interruptions.	Refer- ence Sig- nal.	Chronometer Time of Reference Signal.	Series No.	Coincidences.	Interruptions.	Refer- ence Sig- nal.	Chronometer Time of Reference Signal.
1914				h m s	h m s					h m s					h m s
Feb. 21	C.	4	4	5 30 0	7 57 33.676	1	8	6	233	8 11 56.567	.	.	.	...	.
	C.	4	4	6 27 0	8 54 24.272	2	7	6	232	8 20 55.281	.	.	.	...	.
24	C.	3	3	5 36 0	7 51 40.960	1	8	7	208	8 11 29.751	.	.	.	...	.
	C.	3	3	6 36 0	8 51 31.055	2	8	7	229	8 20 50.251	.	.	.	...	.
	C.	.	.	.	.	3	8	7	199	8 40 20.749	.	.	.	...	.
25	G.	4	4	5 28 0	7 39 44.995	1	8	7	217	8 11 37.751	.	.	.	...	.
	G.	5	5	6 53 0	9 4 30.978	2	8	7	232	8 20 52.311	2	8	7	232	8 30 52.079
	G.	.	.	.	.	3	6	7	198	8 40 18.837	3	7	5	219	8 50 39.301
26	C.	5	5	5 49 0	7 56 44.322	1	8	7	228	8 11 48.024	2	7	6	238	8 30 58.498
	C.	3	3	6 46 0	8 53 34.930	2	8	7	240	8 20 59.627	3	7	3	244	8 51 4.635
27	G.	5	5	5 38 0	7 41 48.974	2	6	6	194	8 20 13.018	.	.	.	...	.
	G.	4	4	6 49 0	8 52 37.271	.	.	.	...	.	.	.	.	...	.
Mar. 4	.	4	4	6 7 0	7 50 59.778	1	7	4	229	8 11 44.715	.	.	.	...	.
	.	2	2	7 5 0	8 48 50.219	2	7	6	224	8 20 39.500	.	.	.	...	.
	.	.	.	.	.	3	6	6	241	8 40 56.502	.	.	.	...	.
5	C.	4	4	6 7 0	7 47 2.495	1	8	6	208	8 11 23.250	.	.	.	...	.
	C.	3	3	7 12 0	8 51 51.769	2	7	5	227	8 50 41.732	.	.	.	...	.
	C.	.	.	.	.	3	6	6	237	8 40 51.840	.	.	.	...	.
7	.	4	4	6 16 0	7 48 6.265	1	8	5	231	8 11 43.749	.	.	.	...	.
	.	3	3	7 18 0	8 49 56.031	2	8	7	202	8 20 14.747	.	.	.	...	.
	.	.	.	.	.	3	7	7	205	8 40 17.924	.	.	.	...	.
9	G.	4	4	6 34 0	7 58 8.744	1	6	5	200	8 11 10.412	.	.	.	...	.
	G.	3	3	7 24 0	8 48 0.505	2	7	6	217	8 20 26.996	.	.	.	...	.
	G.	.	.	.	.	3	6	5	236	8 40 45.919	.	.	.	...	.
11	.	4	4	6 44 0	8 0 12.262	1	2	2	257	8 12 5.000	.	.	.	...	.
	.	3	3	7 16 0	8 32 6.976	2	6	6	243	8 20 51.836	.	.	.	...	.
12	G.	5	5	6 46 0	7 58 14.461	1	8	7	212	8 11 20.249	.	.	.	...	.
	G.	4	4	7 21 0	8 33 8.694	2	6	6	212	8 20 19.917	.	.	.	...	.
13	.	5	5	6 50 0	7 58 16.484	1	7	6	220	8 11 27.498	.	.	.	...	.
	.	3	3	7 20 0	8 28 11.536	2	7	6	197	8 20 4.428	.	.	.	...	.
14	.	5	5	6 54 0	7 58 18.485	1	8	6	207	8 11 13.246	.	.	.	...	.
	.	3	3	7 24 0	8 28 13.532	2	8	6	224	8 20 29.754	.	.	.	...	.
16	.	5	5	7 4 0	8 0 21.924	1	8	7	196	8 10 59.247	.	.	.	...	.
	.	3	3	7 31 0	8 27 17.451	2	8	7	218	8 20 20.754	.	.	.	...	.
17	.	4	4	7 7 0	7 59 23.805	1	4	4	328	8 13 8.374	.	.	.	...	.
	.	3	3	7 36 0	8 28 19.014	2	8	6	212	8 20 13.245	.	.	.	...	.
18	.	5	5	7 12 0	8 0 25.547	1	7	6	263	8 12 4.504	.	.	.	...	.
	.	3	3	7 40 0	8 28 20.925	2	8	7	212	8 20 13.750	.	.	.	...	.
19	G.	5	5	7 10 0	7 54 28.507	1	6	6	275	8 12 14.252	.	.	.	...	.
	G.	3	3	7 43 0	8 27 23.062	2	7	6	195	8 19 54.860	.	.	.	...	.
20	G.	4	4	7 17 0	7 57 29.865	1	6	6	244	8 11 41.995	.	.	.	...	.
	G.	3	2	7 46 0	8 26 25.073	2	7	7	213	8 20 10.929	.	.	.	...	.
21	Lv.	4	4	7 23 0	7 59 31.297	1	8	7	202	8 11 0.247	.	.	.	...	.
	Lv.	4	4	7 53 0	8 29 26.338	2	8	6	224	8 20 21.753	.	.	.	...	.
23	S.	3	3	7 36 0	8 4 34.535	1	8	7	229	8 11 24.252	.	.	.	...	.
	S.	4	4	8 4 0	8 32 29.916	2	6	7	199	8 19 54.245	.	.	.	...	.
25	S.	2	2	7 46 0	8 6 37.717	1	7	6	230	8 11 22.501	.	.	.	...	.
	S.	2	2	8 7 0	8 27 34.239	2	8	7	226	8 20 18.250	.	.	.	...	.
30	.	4	4	8 0 0	8 0 47.284	1	8	4	226	8 11 12.748	.	.	.	...	.
	.	4	4	8 27 0	8 27 42.828	2	8	7	196	8 19 42.750	.	.	.	...	.

¹ One changed —1*0.

TABLE XIII.—*Chronometer Comparisons—Continued.*

AT EIFFEL TOWER, PARIS.

Date.	Observer.	With RIEFLER Standard Clock.				With Radio Signals from LEROY Clock at Radio, Va.				With Radio Signals from LEROY Clock at Eiffel Tower, Paris.					
		Coincidences.	Interruptions.	Reference Second of RIEFLER.	Chronometer Time of Reference Second.	Series No.	Coincidences.	Interruptions.	Refer- ence Sig- nal.	Chronometer Time of Reference Signal.	Series No.	Coincidences.	Interruptions.	Refer- ence Sig- nal.	Chronometer Time of Reference Signal.
1913				h m s	h m s					h m s					h m s
Oct. 31	G.	.	.	.	.	2	4	4	253	8 50 34.450	.	.	.	.	.
	G.	.	.	.	.	3	4	13	230	9 10 10.034	.	.	.	.	.
	C.	4	4	2 59 0	7 51 23.739	3	2	2	230	9 10 10.067	.	.	.	.	.
Nov. 4	C.	5	4	5 0 0	9 52 4.060	.	.	.	.	.	.	.	.	.	.
	C.	6	6	3 24 0	8 0 44.731	3	6	4	173	9 9 20.174	.	.	.	.	.
	C.	4	4	5 15 0	9 51 26.698	.	.	.	.	.	.	.	.	.	.
	G.	.	.	.	.	3	3	3	173	9 9 20.178	.	.	.	.	.
7	C.	5	5	3 22 0	7 47 3.274	3	2	1	236	9 10 31.812	.	.	.	.	.
	C.	2	2	5 7 0	9 31 46.195	.	.	.	.	.	.	.	.	.	.
13	G.	3	3	3 51 0	7 52 35.552	1	3	21	264	8 31 33.609	.	.	.	.	.
	G.	3	3	5 30 0	9 31 19.451	2	5	2	210	8 50 13.655	.	.	.	.	.
	G.	.	.	.	.	3	3	31	254	9 10 55.690	.	.	.	.	.
15	G.	2	2	4 18 0	8 11 43.818	.	.	.	.	.	1	6	3	248	8 18 2.160
	G.	.	.	.	.	.	.	.	.	.	3	4	5	161	8 59 34.638
17	G.	4	4	4 9 0	7 54 56.253	3	3	2	252	9 11 6.090	.	.	.	.	.
	G.	4	3	6 3 0	9 48 37.629	.	.	.	.	.	.	.	.	.	.
	C.	.	.	.	.	3	6	7	252	9 11 6.112	.	.	.	.	.
19	G.	3	2	4 21 0	7 59 6.709	3	3	3	207	9 10 23.846	3	5	5	226	9 0 44.974
	G.	5	5	6 19 0	9 56 47.497	.	.	.	.	.	.	.	.	.	.
20	C.	4	4	4 26 0	8 0 12.280	3	4	5	258	9 11 18.125	1	8	7	256	8 18 16.981
	C.	4	4	6 8 0	9 41 55.711	.	.	.	.	.	3	8	7	198	9 0 19.147
21	C.	3	3	4 29 0	8 0 17.926	1	5	7	180	8 30 1.951	1	6	6	233	8 17 57.925
	C.	4	4	5 59 0	9 30 3.265	3	6	5	211	9 10 34.253	.	.	.	.	.
22	C.	3	3	4 30 0	7 56 24.018	.	.	.	.	.	1	8	7	198	8 17 24.549
	C.	3	3	6 8 0	9 34 8.029	.	.	.	.	.	.	.	.	.	.
24	G.	4	4	4 28 0	7 46 39.064	1	5	4	226	8 31 0.439	1	6	2	230	8 18 9.910
	G.	4	4	6 5 0	9 23 23.265	.	.	.	.	.	.	.	.	.	.
25	G.	4	3	4 20 0	7 34 46.282	1	3	3	213	8 30 47.112	1	5	2	290	8 19 3.282
	G.	5	5	6 12 0	9 26 28.016	3	3	51	221	9 10 51.658	3	7	7	265	9 1 37.241
26	C.	.	.	.	.	1	4	0	278	8 31 51.788	1	6	8	272	8 18 46.980
	G.	5	4	4 28 0	7 38 50.703	.	.	.	.	.	1	7	4	272	8 18 46.955
	G.	3	3	6 29 0	9 39 30.946	3	3	1	224	9 10 55.001	3	7	5	219	9 0 54.376
27	C.	5	5	4 42 0	7 48 54.441	1	2	3	240	8 31 14.875	1	9	8	150	8 16 47.616
	C.	4	3	6 24 0	9 30 37.784	.	.	.	.	.	3	8	7	205	9 0 42.874
28	C.	2	2	5 4 0	8 6 56.796	1	6	6	188	8 29 29.576	.	.	.	.	.
	C.	4	4	6 38 0	9 40 41.514	2	3	3	245	8 50 24.375	.	.	.	.	.
	G.	.	.	.	.	1	5	3	188	8 29 29.562	.	.	.	.	.
29	G.	4	4	4 55 0	7 54 4.450	1	6	4	223	8 31 58.800	.	.	.	.	.
	G.	5	5	6 39 0	9 37 47.510	2	4	0	284	8 51 58.195	.	.	.	.	.
Dec. 3	C.	4	4	5 1 0	7 44 24.930	1	3	5	219	8 29 7.467	2	6	7	224	8 48 11.350
	C.	4	4	6 46 0	9 29 7.784	.	.	.	.	.	.	.	.	.	.
	G.	.	.	.	.	.	.	.	.	.	2	7	4	224	8 48 11.355
	G.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4	G.	5	5	4 51 0	7 30 32.473	1	2	0	235	8 29 24.034	.	.	.	.	.
	G.	3	4	6 49 0	9 28 13.224	.	.	.	.	.	.	.	.	.	.
5	C.	4	4	5 3 0	7 38 36.308	.	.	.	.	.	2	6	7	199	8 47 49.795
	C.	4	4	7 3 0	9 38 16.747	.	.	.	.	.	3	8	7	204	9 7 58.919
6	G.	3	3	5 13 0	7 44 40.570	1	4	72	232	8 29 23.571	.	.	.	.	.
	G.	4	4	7 0 0	9 31 23.128	2	3	62	221	8 38 12.535	.	.	.	.	.
8	C.	4	4	5 12 0	7 35 50.832	2	5	6	153	8 37 3.410	3	7	5	288	9 9 20.883
	C.	3	3	7 20 0	9 43 29.949	3	5	4	210	8 58 3.129	.	.	.	.	.
9	G.	3	3	5 10 0	7 29 57.024	.	.	.	.	.	2	6	3	203	8 47 58.946
	G.	3	3	7 22 0	9 41 35.457	.	.	.	.	.	.	.	.	.	.
	C.	.	.	.	.	.	.	.	.	.	2	7	7	203	8 47 58.978
10	C.	3	3	5 22 0	7 38 0.969	1	3	103	247	8 29 38.912	1	5	4	125	8 17 40.438
	C.	3	3	7 12 0	9 27 43.035	.	.	.	.	.	.	.	.	.	.

¹ One changed -1st0.² Changed -2nd0.³ Changed +5th5.⁴ One changed -1st0; one changed +0th5.⁵ Changed -1st0.⁶ One changed +0th5.⁷ One changed -13th0; one changed -1st0.⁸ Two changed +0th5.⁹ Three changed +1st0.¹⁰ One changed +4th0.; one changed +1st0.

TABLE XIII.—*Chronometer Comparisons—Continued.*

AT EIFFEL TOWER, PARIS—Continued.

Date.	Observer.	With RIEFLER Standard Clock.				With Radio Signals from LEROY Clock at Radio, Va.				With Radio Signals from LEROY Clock at Eiffel Tower, Paris.					
		Coincidences.	Interruptions.	Reference Second of RIEFLER.	Chronometer Time of Reference Second.	Series No.	Coincidences.	Interruptions.	Reference Sig- nal.	Chronometer Time of Reference Signal.	Series No.	Coincidences.	Interruptions.	Reference Sig- nal.	Chronometer Time of Reference Signal.
1913				h m s	h m s					h m s					h m s
Dec. 10	G.	.	.			2	2	13	221	8 38 12.905	1	4	2	125	8 17 40.468
11	C.	5	5	5 26 0	7 38 6.473	1	6	5	233	8 29 30.432	1	8	27	215	8 19 17.028
	C.	4	4	7 21 0	9 32 47.730	2	3	3	149	8 37 7.009	2	6	5	188	8 47 50.136
	C.	.	.			.	.	.			3	6	3	210	9 8 11.097
12	C.	3	3	5 37 0	7 45 11.067	1	8	7	199	8 29 8.570	1	8	7	176	8 18 38.981
	C.	3	3	7 37 0	9 44 51.549	3	5	5	230	8 58 37.447	2	8	57	239	8 48 42.199
13	G.	3	3	5 34 0	7 38 18.033	.	.	.			1	4	2	239	8 19 42.770
	G.	3	2	7 43 0	9 46 57.052	.	.	.			.	.	.
	C.	.	.			.	.	.			1	6	4	239	8 19 42.771
15	C.	4	4	5 20 0	7 16 32.220	1	4	2	297	8 31 30.040	1	7	7	181	8 18 48.176
	C.	4	4	7 35 0	9 31 10.308	.	.	.			2	7	6	232	8 48 49.473
	C.	.	.			1	3	1	297	8 31 30.049	1	5	4	181	9 9 9.449
	G.	.	.			.	.	.			2	6	45	232	8 48 49.424
	G.	.	.			.	.	.			3	6	4	264	9 9 9.434
16	C.	4	4	5 50 0	7 42 34.249	1	5	6	211	8 29 20.544	1	5	4	125	8 17 56.053
	C.	3	3	7 49 0	9 41 14.922	2	7	6	210	8 38 19.311	2	7	6	234	8 48 43.911
	C.	.	.			3	4	6	214	8 58 26.554	3	8	7	203	9 8 13.402
	C.	.	.			1	2	2	211	8 29 20.461	1	4	1	125	8 17 56.028
	G.	.	.			2	6	3	210	8 38 19.327	2	7	5	234	8 48 43.881
	G.	.	.			3	3	2	214	8 58 26.467	3	7	5	203	9 8 13.385
17	C.	3	3	6 18 0	8 6 36.531	3	6	2	214	8 58 26.229	.	.	.		
	C.	4	4	7 43 0	9 31 22.731	.	.	.			1	8	7	253	8 20 8.557
18	C.	3	3	6 2 0	7 46 46.060	2	6	6	208	8 38 26.294	2	8	7	236	8 48 51.583
	C.	3	3	7 38 0	9 22 30.469	.	.	.			3	9	7	213	9 8 28.990
	C.	.	.			2	4	1	208	8 38 26.293	1	7	5	253	8 20 8.550
	G.	.	.			.	.	.			2	7	5	236	8 48 51.579
	G.	.	.			.	.	.			3	8	4	213	9 8 28.979
19	C.	4	4	6 9 0	7 49 51.737	1	3	2	220	8 29 38.354	1	8	7	234	8 20 0.618
	C.	3	3	7 49 0	9 29 35.500	2	7	5	199	8 38 17.280	3	7	6	207	9 8 16.091
	G.	.	.			1	4	2	220	8 29 38.359	1	8	5	234	8 20 0.604
	G.	.	.			2	7	37	199	8 38 17.221	3	8	6	207	9 8 26.083
20	C.	2	2	6 4 0	7 40 59.228	1	6	45	252	8 30 10.026	2	7	7	213	8 48 33.919
	C.	5	5	7 45 0	9 21 42.813	2	7	46	125	8 37 3.966	3	4	3	120	9 7 2.022
	G.	.	.			1	3	3	252	8 30 9.997	2	8	5	213	8 48 33.921
	G.	.	.			2	4	2	125	8 37 3.933	3	4	3	120	9 7 2.008
	G.	.	.			3	3	1	215	8 58 31.490	.	.	.		
22	G.	3	3	6 26 0	7 55 8.505	.	.	.			1	7	6	211	8 19 38.167
	G.	3	3	7 59 0	9 27 53.410	.	.	.			2	7	4	268	8 49 40.409
23	C.	4	4	6 12 0	7 37 18.270	2	4	3	273	8 39 39.252	2	7	7	182	8 48 10.655
	C.	4	4	8 9 0	9 33 59.308	3	3	1	182	8 58 7.504	3	6	6	237	9 9 5.298
	G.	.	.			2	6	2	273	8 39 39.229	2	8	6	182	8 48 10.644
	G.	.	.			3	4	4	182	8 58 7.400	3	8	5	237	9 9 5.269
26	G.	2	2	6 59 0	8 12 33.728	.	.	.			1	7	5	160	8 19 2.007
	G.	3	3	8 14 0	9 27 21.563	.	.	.			2	7	4	226	8 49 12.189
27	G.	4	4	6 33 0	7 42 45.326	.	.	.			1	8	6	199	8 19 41.853
	G.	4	4	8 9 0	9 18 29.756	.	.	.			.	.	.
29	G.	1	1	7 43 0	8 44 48.005	.	.	.			1	8	5	218	8 20 6.844
	G.	3	3	8 17 0	9 18 42.509	3	2	0	232	8 59 14.259	2	8	5	202	8 48 50.874
	G.	.	.			.	.	.			3	7	4	226	9 9 13.845
	C.	.	.			.	.	.			1	8	7	218	8 20 6.872
	C.	.	.			.	.	.			2	6	6	202	8 48 50.868
	C.	.	.			.	.	.			3	6	6	226	9 9 13.860
30	G.	4	4	7 10 0	8 8 0.950	1	5	4	264	8 30 52.866	1	6	6	244	8 20 36.639
	G.	5	4	8 24 0	9 21 48.956	2	2	2	267	8 39 55.611	2	8	6	267	8 49 59.288
	G.	.	.			.	.	.			3	6	6	210	9 9 3.026

¹ One changed +40; one changed +0.5.² Two changed -1.0; one changed +0.5.³ One changed -0.5.⁴ One changed +0.5.⁵ One changed -1.0; one changed +0.5.⁶ Two changed -1.0.⁷ One changed +2.0.⁸ One changed +0.5; one changed -1.0.

TABLE XIII.—*Chronometer Comparisons—Continued.*

AT EIFFEL TOWER, PARIS—Continued.

Date.	Observer.	With RIEFLER Standard Clock.				With Radio Signals from LEROY Clock at Radio, Va.				With Radio Signals from LEROY Clock at Eiffel Tower, Paris.					
		Coincidences.	Interruptions.	Reference Second of RIEFLER.	Chronometer Time of Reference Second.	Series No.	Coincidences.	Interruptions.	Refer- ence Signal.	Chronometer Time of Reference Signal.	Series No.	Coincidences.	Interruptions.	Refer- ence Signal.	Chronometer Time of Reference Signal.
1913 Dec. 31	C.	2	2	h m s 7 10 0	h m s 8 4 8.543	1	5	5	256	h m s 8 30 50.450	1	8	7	211	h m s 8 20 7.746
	C.	3	3	8 33 0	9 26 55.078	2	7	16	229	8 39 23.465	2	7	7	224	8 49 19.498
	C.	.	.	.	.	3	3	4	224	8 59 16.883	3	7	7	200	9 8 57.922
1914 Jan. 21	S.	6	3	8 25 0	12 14 6.471	1	2	0	177	12 47 18.619	.	.	.	...	...
	..	5	5	9 51 0	13 39 52.569	2	4	2	225	12 57 4.892	.	.	.	...	...
22	Lv.	5	2	8 31 0	12 16 13.518	1	8	3	221	12 48 7.710	1	8	5	211	12 37 53.752
	Lv.	5	3	9 54 0	13 39 0.074	2	4	2	268	12 57 51.027	.	.	.	...	...
23	S.	2	1	8 37 0	12 18 20.177	1	7	7	207	12 47 55.358	1	7	6	231	12 38 28.406
	S.	5	5	10 2 0	13 43 6.391	2	6	6	237	12 57 23.834	.	.	.	...	...
24	S.	.	.	.	.	3	5	6	230	13 17 17.194	.	.	.	...	...
	Lv.	4	1	8 50 0	12 27 25.879	1	3	0	245	12 48 35.629	1	6	4	256	12 38 47.356
26	Lv.	4	1	10 3 0	13 40 14.070	.	.	.	.	.	.	.	.	...	...
	S.	4	2	8 54 0	12 23 40.695	1	7	5	228	12 48 25.956	1	8	5	187	12 37 44.405
27	S.	4	4	10 11 0	13 40 28.227	2	6	5	238	12 57 35.547	2	6	7	242	13 7 36.729
	S.	.	.	.	.	.	.	.	.	.	3	6	7	273	13 28 10.611
28	Lv.	5	5	8 57 0	12 22 48.740	1	5	4	213	12 48 15.024	.	.	.	...	...
	Lv.	4	4	10 11 0	13 36 36.723	3	2	0	208	13 17 11.139	.	.	.	...	...
29	S.	3	3	9 1 0	12 22 55.525	1	8	6	204	12 48 10.711	1	7	7	221	12 38 26.389
	S.	4	4	10 17 0	13 38 43.208	2	7	6	250	12 57 56.030	2	8	7	212	13 7 18.305
30	S.	.	.	.	.	3	2	2	285	13 18 31.081	.	.	.	...	...
	Lv.	4	4	9 10 0	12 28 1.803	1	7	4	234	12 48 42.615	1	8	5	146	12 37 14.100
31	Lv.	4	4	10 21 0	13 38 50.311	.	.	.	.	.	3	8	5	203	13 27 12.502
	S.	3	3	9 17 0	12 31 8.486	1	7	6	227	12 48 40.450	1	8	7	215	12 38 26.727
Feb. 2	S.	4	4	10 26 0	13 39 57.268	2	3	3	203	12 57 17.397	2	7	6	213	13 7 25.587
	S.	.	.	.	.	3	2	2	210	13 17 24.687	3	8	6	209	13 27 22.782
3	Lv.	5	4	9 17 0	12 27 15.533	1	7	4	214	12 48 29.569	1	8	5	228	12 38 44.254
	Lv.	5	5	10 35 0	13 45 2.862	2	6	3	251	12 58 5.961	2	7	5	202	13 7 17.354
4	Lv.	.	.	.	.	.	.	.	.	.	3	8	6	287	13 28 42.665
	Lv.	5	3	9 22 0	12 24 29.978	.	.	.	.	.	1	8	7	218	12 38 51.701
5	Lv.	5	3	10 39 0	13 41 17.458	.	.	.	.	.	2	8	6	211	13 7 33.718
	Lv.	.	.	.	.	.	.	.	.	.	3	7	6	230	13 27 53.682
6	S.	5	4	9 26 0	12 24 36.553	1	6	5	200	12 48 28.646	.	.	.	...	...
	S.	5	5	10 47 0	13 45 23.448	2	5	5	230	12 57 59.115	3	8	7	214	13 27 40.437
7	Lv.	5	3	9 23 0	12 17 44.874	1	6	4	212	12 48 41.763	.	.	.	...	...
	Lv.	5	5	10 46 0	13 40 31.439	.	.	.	.	.	.	.	.	...	...
8	S.	2	4	9 33 0	12 23 50.576	1	8	7	206	12 48 39.760	.	.	.	...	...
	S.	5	5	10 50 0	13 40 38.088	2	4	4	266	12 58 38.947	.	.	.	...	...
9	S.	.	.	.	.	3	2	1	230	13 18 2.630	.	.	.	...	...
	S.	3	3	9 42 0	12 25 4.951	1	8	7	227	12 49 7.706	1	7	6	198	12 38 37.548
10	S.	4	4	10 54 0	13 36 53.287	2	2	3	203	12 57 43.677	2	8	7	216	13 7 56.183
	S.	4	4	9 49 0	12 24 19.700	1	5	5	266	12 49 55.140	1	8	7	221	12 39 8.639
11	S.	4	4	11 3 0	13 38 7.700	2	4	3	218	12 58 9.328	3	8	7	218	13 28 5.195
	Lv.	4	2	9 50 0	12 21 27.049	1	7	3	211	12 49 1.812	1	8	4	246	12 39 38.222
12	Lv.	5	2	11 7 0	13 38 14.546	2	3	1	177	12 57 27.869	2	8	5	219	13 8 11.265
	Lv.	.	.	.	.	.	.	.	.	.	3	8	5	226	13 28 18.374
13	S.	5	5	10 2 0	12 29 32.478	.	.	.	.	.	1	6	6	223	12 39 17.556
	S.	4	4	11 11 0	13 38 21.270	.	.	.	.	.	.	.	.	...	...
14	Lv.	4	4	10 8 0	12 23 53.835	.	.	.	.	.	1	9	5	248	12 39 55.157
	Lv.	4	4	11 23 0	13 38 41.672	.	.	.	.	.	2	7	5	219	13 8 23.342
15	Lv.	.	.	.	.	.	.	.	.	.	3	7	5	219	13 28 24.514
	S.	4	4	10 17 0	12 25 7.780	1	3	3	278	12 50 28.923	1	8	7	231	12 39 43.700
16	S.	4	4	11 34 0	13 41 55.292	2	6	5	267	12 59 17.780	2	8	7	231	13 8 43.540
	S.	4	2	10 22 0	12 26 14.509	1	8	5	222	12 49 36.600	1	8	7	148	12 38 38.413
17	S.	4	4	11 35 0	13 39 2.692	2	5	3	226	12 58 41.268	2	6	6	219	13 8 34.707
	S.	.	.	.	.	3	3	2	224	13 18 38.587	.	.	.	...	...

¹ One changed $-10^{\circ}0$.² One changed $+0^{\circ}5$.³ One changed $+0^{\circ}5$; one changed $-0^{\circ}5$.⁴ Two changed $+1^{\circ}0$.⁵ One changed $+1^{\circ}0$.⁶ Changed $-2^{\circ}0$.

TABLE XIII.—*Chronometer Comparisons*—Continued.

AT EIFFEL TOWER, PARIS—Continued.

Date.	Observer.	With RIEFLER Standard Clock.				With Radio Signals from LEROY Clock at Radio, Va.				With Radio Signals from LEROY Clock at Eiffel Tower, Paris.					
		Coincidences.	Interruptions.	Reference Second of RIEFLER.	Chronometer Time of Reference Second.	Series No.	Coincidences.	Interruptions.	Refer- ence Sig- nal.	Chronometer Time of Reference Signal.	Series No.	Coincidences.	Interruptions.	Refer- ence Sig- nal.	Chronometer Time of Reference Signal.
1914				h m s	h m s					h m s					h m s
Feb. 18	Lv.	5	5	10 22 0	12 22 22.025	1	6	2	260	12 50 21.037	2	8	5	230	13 8 49.374
	Lv.	5	5	11 39 0	13 39 9.558	2	12	0	183	12 58 4.508	3	8	5	230	13 28 48.577
19	Lv.	.	.	.	.	1	2	2 ¹	299	12 50 59.506	.	.	.	...	...
	Lv.	4	3	10 31 0	12 27 27.946	1	2	1	299	12 50 59.506	.	.	.	...	...
20	Lv.	5	5	11 45 0	13 41 15.971	2	8	6	241	12 59 1.751	.	.	.	...	...
	Lv.	.	.	.	.	3	2	0	277	13 19 37.640	.	.	.	...	...
21	S.	4	4	10 37 0	12 29 34.518	1	7	6	247	12 50 12.588	2	8	6	232	13 8 58.089
	S.	4	4	11 50 0	13 42 22.681	2	5	4	230	12 58 55.471	3	8	7	234	13 28 59.245
25	Lv.	4	4	10 37 0	12 25 41.798	1	7	6	233	12 50 0.688	.	.	.	...	...
	Lv.	5	5	11 53 0	13 41 29.500	2	6	4	232	12 58 59.399	.	.	.	...	...
26	Lv.	5	4	10 51 0	12 24 10.482	2	7	2	232	12 59 14.430	2	7	5	232	13 9 14.166
	Lv.	5	3	12 8 0	13 40 58.001	.	.	.	...	...	3	9	5	219	13 29 1.472
27	S.	5	5	10 56 0	12 25 17.016	1	3	2	228	12 50 14.214	2	7	7	238	13 9 24.722
	S.	5	5	12 19 0	13 48 3.576	2	4	3	240	12 59 25.869	3	7	6	244	13 29 30.854
Mar. 5	S.	5	5	11 4 0	12 29 23.029	2	3	3	194	12 58 43.225	.	.	.	...	...
	S.	5	5	12 15 0	13 40 11.524	.	.	.	...	...	.	.	.	...	...
	S.	3	1	11 32 0	12 34 2.561	2	4	2	227	12 59 34.853	.	.	.	...	...
	S.	4	4	12 39 0	13 40 51.708	3	5	5	237	13 19 45.000	.	.	.	...	...

¹ One changed +0⁵.² Changed -1⁰.³ One changed +0⁵; one changed -0⁵.

THE TRANSMISSION TIME.

The work of nights on which radio observations were made at both stations is especially adapted for the determination of the transmission time, as the results from the work of such nights are free from the errors in the adopted clock corrections, though not from those of the adopted clock rates, as may be seen from the following:

Let λ_0 = the true longitude.

λ_p = the longitude from signals received at Paris.

λ_w = the longitude from signals received at Washington.

D = the distance from Paris to Washington.

V = the velocity of transmission of the signals.

T_p and T_w = the clock times of a signal from Washington as observed at Paris and Washington.

T'_p and T'_w = the clock times of a signal from Paris as observed at Paris and Washington.

ΔT_{op} and ΔT_{ow} = the adopted clock corrections at Paris and Washington for any time T_0 .

δT_p and δT_w = the adopted clock rates at Paris and Washington.

X_p and X_w = the corrections to reduce clock corrections to true values.

Y_p and Y_w = the corrections to reduce clock rates to true values.

CG_{cp} and CG_{rp} = the average personal equations of COFFMAN and GILLESPIE for emission and reception signals at Paris.

SL_{cw} and SL_{rw} = the average personal equations of SAUNDERS and LAVENDER for emission and reception signals at Washington.

$$\text{Then } \lambda_p = T_p + \Delta T_{op} + \delta T_p(T_p - T_o) - T_w - \Delta T_{ow} - \delta T_w(T_w - T_o) \quad (1)$$

$$\lambda_o = \lambda_p - \frac{D}{V} + CG_{rp} + X_p + Y_p(T_p - T_o) - SL_{cw} - X_w - Y_w(T_w - T_o) \quad (2)$$

$$\lambda_w = T'_p + \Delta T_{op} + \delta T_p(T'_p - T_o) - T'_w - \Delta T_{ow} - \delta T_w(T'_w - T_o) \quad (3)$$

$$\lambda_o = \lambda_w + \frac{D}{V} + CG_{rp} + X_p + Y_p(T'_p - T_o) - SL_{rw} - X_w - Y_w(T'_w - T_o) \quad (4)$$

From (2) and (4):

$$\lambda_p - \lambda_w = \frac{2D}{V} + CG_{cp} - CG_{rp} + Y_p(T'_p - T_p) + SL_{cw} - SL_{rw} - Y_w(T'_w - T_w)$$

and after the exchange of observers—

$$\lambda_p - \lambda_w = \frac{2D}{V} + SL_{cp} - SL_{rp} + Y'_p(T'''_p - T''_p) + CG_{cw} - CG_{rw} - Y'_w(T'''_w - T''_w).$$

The effect of errors in the adopted clock rates is small because of the short interval between the mean times of the observations of signals in opposite directions. These errors are also accidental in character. The effect of personal equation is not eliminated, but it is probably true that the personal equation of each observer was nearly the same for emission and reception signals, in which case the effect of these personal equations is small.

Table XIV gives the value of the double-transmission time as determined from the work of each of the nights when there were radio observations at each station. The weights assigned depend on the number of series of radio observed and the number of coincidences observed in the series.

TABLE XIV.—Observed Values of the Double-Transmission Time.

Date.	No. Sets Radio.		Inter- val.	Double- Transmis- sion Time.	Wt.	Date.	No. Sets Radio.		Inter- val.	Double- Transmis- sion Time.	Wt.
	Wash- ing- ton.	Paris.					Wash- ing- ton.	Paris.			
1913			h	s		1914			h	s	
Nov. 19	1	1	0.2	+0.200	0.5	Jan. 22	1	2	0.2	0.000	0.8
20	2	1	0.5	+0.035	1.3	23	1	3	0.4	+0.036	1.5
21	1	2	0.6	+0.047	0.8	24	1	1	0.2	+0.134	0.3
24	1	1	0.4	+0.124	0.5	26	3	2	0.2	+0.044	2.2
25	2	2	0.2	+0.019	1.3	28	2	3	0.0	+0.052	1.7
26	2	2	0.2	+0.088	1.1	29	2	2	0.2	+0.034	1.5
27	2	1	0.1	-0.014	0.8	30	4	3	0.0	+0.057	2.7
Dec. 3	1	1	0.3	-0.004	1.0	31	5	2	0.2	+0.069	2.5
8	1	2	0.4	+0.037	1.3	Feb. 3	1	2	0.2	+0.019	1.2
10	1	2	0.2	-0.006	0.9	7	2	2	0.0	+0.053	1.5
11	3	2	0.2	+0.036	1.9	9	3	2	0.0	+0.049	1.7
12	2	2	0.2	-0.016	1.5	10	4	2	0.2	+0.019	2.2
15	3	2	0.2	+0.084	1.9	16	2	2	0.0	+0.021	1.1
16	3	6	0.0	+0.045	3.2	17	2	3	0.2	+0.038	1.2
18	3	2	0.1	+0.071	2.0	18	2	2	0.3	+0.019	1.2
19	2	4	0.1	+0.039	1.7	20	1	2	0.1	+0.031	0.4
20	2	5	0.3	+0.111	2.0	25	2	1	0.3	+0.040	1.0
23	2	4	0.2	+0.074	1.8	26	2	2	0.4	+0.051	1.7
29	3	1	0.0	-0.080	0.4						
30	3	2	0.2	-0.042	0.9						
31	3	3	0.0	+0.044	2.7						

From the data in Table XIV the following values of the double-transmission time have been obtained:

Period I (21 nights).....	^s 0. 0459 ^s $\pm 0. 0068$, weight 1. 0
Period II (18 nights).....	0. 0422 $\pm 0. 0032$, weight 4. 5
All.....	0. 0429 $\pm 0. 0029$

As the systematic difference between the results for the two periods was comparatively small, and as there was a decided difference in the accuracy of the two results, due in all probability to the improved conditions for radio transmission in the second period, these results have been combined with the weights indicated by their probable errors.

As the distance from Washington to Paris is 3,840 miles, the transmission time gives a velocity of transmission of 179,000 $\pm 12,000$ miles per second.*

THE WASHINGTON-PARIS LONGITUDE.

The correction for time of transmission as determined above has been applied to all the longitude results. All of the available radio observations for each night, omitting series in which but a single coincidence was observed, have been combined to form a single longitude determination. There were eight nights in the first period and nine nights in the second period when astronomical observations were secured at both stations and when radio observations were made at one or both stations. There were also five additional combinations of nights in the first period, and five in the second period when independent longitude determinations can be obtained by carrying the clock correction at one or both stations for from one to three days by means of the clock rate. In view of the excellent installation and good performance of the clocks at both observatories, this is considered a safe proceeding in the present case. The weight assigned for the longitude of a night is based on the number of series of radio observed, the number of coincidences observed in the series, the number of stars observed, and the number of days the clock corrections have been carried by the rates. Table XV gives the data available and the results obtained on these nights. Table XVI gives the data available and results obtained by the use of plotted clock corrections and radio observations on all nights when they were secured.

*The value of the double transmission time as given in the preliminary publication in the *Astronomical Journal* of March 15, 1915, is 0.0437, giving a velocity of transmission of 175,000 miles per second. The value of the double transmission time from the photographic work of the French observers is 0.04244, giving a velocity of transmission of 181,000 miles per second. See note "Sur une méthode de mesure directe de la durée de propagation des ondes de T. S. F. à la surface du Globe" par MM. H. ABRAHAM, A. DUFOUR, et G. FERRIÉ, *Comptes Rendus de l'Académie des Sciences*, July 6, 1914, and "The Velocity of Hertzian Waves" by Ensign H. E. SAUNDERS, U. S. N., *Scientific American Supplement*, July 10, 1915.

WASHINGTON-PARIS LONGITUDE, 1913-1914.

TABLE XV.—*Longitudes Based on Observed Clock Corrections.*

PERIOD I.

Date.	No. Sets of Radio.		Clock Corrections from all Stars.				Clock Corrections from Common Stars.				Clock Corrections from Stars near Time of Radio.				
			No. Stars.		Longitude 5 ^h 17 ^m +.	Wt.	No. Stars.		Longitude 5 ^h 17 ^m +.	Wt.	No. Stars.		Longitude 5 ^h 17 ^m +.	Wt.	
	Washington.	Paris.	Washington.	Paris.			Washington.	Paris.			Washington.	Paris.			
1913					s					s					
Oct. 31	.	3	18	27	} 36.683	1.1	..	..	.....	...	..	..	.....	...	...
Nov. 1	.	.	..	..							
4	.	2	32	25	} 36.624	0.9	..	..	.....	...	..	..	.....	...	...
5	.	.	..	29											
7	.	1	11	29	36.604	0.6	4	4	36.618	0.5	11	12	36.585	0.6	...
11	.	.	..	23	} 36.696	1.0	..	..	.....	...	..	..	.....	...	...
13	.	3	8	..											
16	.	.	..	9	} 36.679	0.9	..	..	.....	...	..	..	.....	...	...
17	.	2	32	..											
19	1	1	19	26	36.605	1.0	9	9	36.605	0.9	4	11	36.627	0.8	...
25	.	.	12	..	} 36.645	1.1	..	..	.....	...	..	..	.....	...	...
27	2	1	..	..									
29	.	..	..	11	} 36.537	1.5	3	3	36.547	0.8	..	..	.....	...	...
Dec. 8	1	2	21	17											
13	1	.	24	30	36.558	1.0	10	10	36.560	0.9	8	18	36.524	0.9	...
19	2	4	36	18	36.572	1.6	7	7	36.549	1.3	20	12	36.564	1.6	...
20	2	5	34	35	36.543	1.6	12	12	36.548	1.6	19	11	36.568	1.6	...
23	2	4	20	9	36.644	1.3	2	2	36.489	0.5	15	6	36.649	1.2	...
31	3	3	7	8	36.654	0.9	..	..	.....	...	..	..	.....	...	...

PERIOD II.

1914																	
Jan.	21	.	3	9	16	36.856	1.1	..	..	.....	...	..	..	36.844	1.1
	24	1	1	..	30			..	..	.....	...	..	..	.....	...
	26	3	2	12	..	36.807	1.5	..	..	.....	...	..	..	.....	...
Feb.	31	5	2	24	21	36.853	1.7	10	10	36.832	1.5	13	11	36.800	1.7		
	2	5	.	.	29	25	36.805	1.6	11	11	36.823	1.6	14	12	36.804	1.6	
	3	1	2	21	25	36.842	1.4	10	10	36.845	1.3	11	11	36.785	1.4		
	4	.	.	1	10	29	36.782	0.9	5	5	36.846	0.8	10	13	36.761	0.9	
	5	.	3	..	28												
	7	2	2	24	..	36.837	1.5	..	..	.....	...	..	..	.....	...
	9	3	2	23	4	36.772	0.7	2	2	36.815	0.4	..	..	.....	...
	10	4	2	..	22											...	
	11	1	.	.	27	..	36.791	1.5	
	17	2	3	25	20	36.793	1.6	8	8	36.784	1.3	10	5	36.725	1.3		
	21	.	2	27													
	24	22		36.794	1.1	
24	.	.	16			36.804	1.0	..	..	.....	...	..	..	.....	...
25	2	1	..	7				..	..	.....	...	..	..	.....	...
26	2	2	21	20	36.767	1.6	7	7	36.760	1.3	10	20	36.736	1.5			
27	.	1	25	26	36.801	1.0	10	10	36.751	0.9	12	14	36.807	1.0			

TABLE XVI.—Longitudes Based on Plotted Clock Corrections.

PERIOD I.

Date.	From Signals Received at Eiffel Tower, Paris.								From Signals Received at Radio, Va.								From all Signals.	Wt.
	Series No.	Obsr.		No. Coincs.		Longitude for Date.		Series No.	Obsr.		No. Coincs.		Longitude for Date.					
		Eiffel.	Radio.	Eiffel.	Radio.	Longi- tude 5 ^h 17 ^m +	Ob- served.		Cor- rected for Trans- mis- sion Time.	Eiffel.	Radio.	Eiffel.	Radio.	Longi- tude 5 ^h 17 ^m +	Ob- served.	Cor- rected for Trans- mis- sion Time.		
1913																		
Oct. 31	2	Lv.	G.	7	4	36.705	36.681	36.660	.	.	.	.	.	.	.	.	36.660	1.2
31	3	Lv.	G.	7	4	36.653	.....	.....	.	.	.	.	.	.	.	.	.....	.....
31	3	Lv.	C.	7	2	36.686	.....	.....	.	.	.	.	.	.	.	.	.....	.....
Nov. 4	3	S.	C.	7	6	36.686	36.684	36.663	.	.	.	.	.	.	.	.	36.663	1.0
4	3	S.	G.	7	3	36.682	.....	.....	.	.	.	.	.	.	.	.	.....	.....
7	3	Lv.	C.	8	2	36.706	36.706	36.685	.	.	.	.	.	.	.	.	36.685	0.7
13	1	S.	G.	4	3	36.774	36.724	36.703	.	.	.	.	.	.	.	.	36.703	1.2
13	2	S.	G.	8	5	36.669	.....	.....	.	.	.	.	.	.	.	.	.....	.....
13	3	S.	G.	8	3	36.729	.....	.....	.	.	.	.	.	.	.	.	.....	.....
15	.	.	.	.	.	.....	.....	.....	1	G.	S.	6	7	36.703	36.704	36.725	36.725	1.2
15	.	.	.	.	.	.....	.....	.....	3	G.	S.	4	2	36.707	.....	.....	.....	.....
17	3	Lv.	G.	7	3	36.694	36.705	36.684	.	.	.	.	.	.	.	.	36.684	1.0
17	3	Lv.	C.	7	6	36.716	.....	.....	.	.	.	.	.	.	.	.	.....	.....
19	3	Lv.	G.	6	3	36.713	36.713	36.692	3	G.	Lv.	5	2	36.513	36.513	36.534	36.613	1.0
20	3	S.	C.	7	4	36.673	36.673	36.652	1	C.	S.	8	4	36.647	36.638	36.659	36.657	1.5
20	.	.	.	.	.	.....	.....	.....	3	C.	S.	8	3	36.628	.....	.....	.....	.....
21	1	Lv.	C.	8	5	36.731	36.698	36.677	1	C.	Lv.	6	2	36.651	36.651	36.672	36.676	1.3
21	3	Lv.	C.	8	6	36.633	.....	.....	.	.	.	.	.	.	.	.	.....	.....
22	.	.	.	.	.	.....	.....	.....	1	C.	S.	8	4	36.789	36.789	36.810	[36.810]	[0.7]
24	1	S.	G.	5	5	36.680	36.680	36.659	1	G.	S.	6	3	36.556	36.556	36.577	36.618	1.0
25	1	Lv.	G.	6	3	36.605	36.570	36.549	1	G.	Lv.	5	3	36.525	36.551	36.572	36.564	1.5
25	3	Lv.	G.	6	3	36.536	.....	.....	3	G.	Lv.	7	3	36.577	.....	.....	.....	.....
26	1	S.	C.	6	4	36.647	36.638	36.617	1	C.	S.	6	4	36.574	36.550	36.571	36.584	1.5
26	3	S.	G.	8	3	36.621	.....	.....	1	G.	S.	7	4	36.549	.....	.....	.....	.....
26	.	.	.	.	.	.....	.....	.....	3	G.	S.	7	4	36.539	.....	.....	.....	.....
27	1	S.	C.	8	2	36.602	36.602	36.581	1	C.	S.	9	3	36.592	36.616	36.637	36.626	1.4
27	.	.	.	.	.	.....	.....	.....	3	C.	S.	8	3	36.641	.....	.....	.....	.....
28	1	Lv.	C.	5	6	36.565	36.569	36.548	.	.	.	.	.	.	.	.	36.548	1.3
28	2	Lv.	C.	7	3	36.596	.....	.....	.	.	.	.	.	.	.	.	.....	.....
28	1	Lv.	G.	5	5	36.551	.....	.....	.	.	.	.	.	.	.	.	.....	.....
29	1	Lv.	G.	7	6	36.606	36.624	36.603	.	.	.	.	.	.	.	.	36.603	0.9
29	2	Lv.	G.	6	4	36.659	.....	.....	.	.	.	.	.	.	.	.	.....	.....
Dec. 3	1	S.	C.	8	3	36.586	36.586	36.565	2	C.	S.	6	6	36.588	36.590	36.611	36.588	1.3
3	.	.	.	.	.	.....	.....	.....	2	G.	S.	7	6	36.593	.....	.....	.....	.....
4	1	Lv.	G.	7	2	36.604	36.604	36.583	.	.	.	.	.	.	.	.	36.583	0.3
5	.	.	.	.	.	.....	.....	.....	2	C.	S.	6	8	36.577	36.600	36.621	36.621	1.3
5	.	.	.	.	.	.....	.....	.....	3	C.	S.	8	3	36.622	.....	.....	.....	.....
6	1	Lv.	G.	8	4	36.513	36.570	36.549	.	.	.	.	.	.	.	.	36.549	0.7
6	2	Lv.	G.	7	3	36.628	.....	.....	.	.	.	.	.	.	.	.	.....	.....
8	2	Lv.	C.	6	5	36.579	36.564	36.543	3	C.	Lv.	7	3	36.527	36.527	36.548	36.545	1.5
8	3	Lv.	C.	7	5	36.550	.....	.....	.	.	.	.	.	.	.	.	.....	.....
9	.	.	.	.	.	.....	.....	.....	2	G.	S.	6	4	36.508	36.524	36.545	36.545	1.0
9	.	.	.	.	.	.....	.....	.....	2	C.	S.	7	4	36.540	.....	.....	.....	.....
10	1	C.	Lv.	6	3	36.574	36.570	36.549	1	C.	Lv.	5	4	36.561	36.576	36.597	36.575	1.3
10	2	G.	Lv.	5	2	36.562	.....	.....	1	G.	Lv.	4	4	36.591	.....	.....	.....	.....
11	1	S.	C.	8	6	36.588	36.582	36.561	1	C.	S.	8	7	36.557	36.546	36.567	36.565	1.6
11	2	S.	C.	6	3	36.571	.....	.....	2	C.	S.	6	6	36.553	.....	.....	.....	.....
11	.	.	.	.	.	.....	.....	.....	3	C.	S.	6	5	36.510	.....	.....	.....	.....
12	1	Lv.	C.	4	8	36.579	36.606	36.585	1	C.	Lv.	8	4	36.659	36.622	36.643	36.614	1.5
12	3	Lv.	C.	5	5	36.620	.....	.....	2	C.	Lv.	8	4	36.547	.....	.....	.....	.....
13	.	.	.	.	.	.....	.....	.....	1	G.	S.	4	5	36.541	36.542	36.563	36.563	1.0
13	.	.	.	.	.	.....	.....	.....	1	C.	S.	6	5	36.542	.....	.....	.....	.....
15	1	S.	C.	5	4	36.585	36.588	36.567	1	C.	S.	7	2	36.520	36.504	36.525	36.541	1.6
15	1	S.	G.	5	3	36.594	.....	.....	2	C.	S.	7	6	36.519	.....	.....	.....	.....
15	.	.	.	.	.	.....	.....	.....	3	C.	S.	7	5	36.519	.....	.....	.....	.....

TABLE XVI.—Longitudes Based on Plotted Clock Corrections—Continued.

PERIOD I—Continued.

Date.	From Signals Received at Eiffel Tower, Paris.							From Signals Received at Radio, Va.							From all Signals.	Wt.
	Series No.	Obsr.		No. Coins.	Longitude for Date.			Series No.	Obsr.		No. Coins.	Longitude for Date.				
		Eiffel.	Radio.		Longi- tude 5 ^h 17 ^m +	Ob- served.	Cor- rected for Trans- mis- sion Time.		Eiffel.	Radio.		Longi- tude 5 ^h 17 ^m +	Ob- served.	Cor- rected for Trans- mis- sion Time.		
1913					s	s	s					s	s	s		
Dec. 15	.	.	.	.	.	.	.	1	G.	S.	5	2	36.493	.	.	.
15	.	.	.	.	.	.	.	2	G.	S.	6	6	36.470	.	.	.
15	.	.	.	.	.	.	.	3	G.	S.	6	5	36.504	.	.	.
16	1	Lv.	C.	8	5	36.636	36.631	36.610	1	C.	Lv.	5	3	36.561	36.586	36.607
16	2	Lv.	C.	8	7	36.650	.	.	2	C.	Lv.	7	7	36.601	.	.
16	3	Lv.	C.	7	4	36.645	.	.	3	C.	Lv.	8	5	36.614	.	.
16	1	Lv.	G.	8	2	36.553	.	.	1	G.	Lv.	4	3	36.536	.	.
16	2	Lv.	G.	8	6	36.666	.	.	2	G.	Lv.	7	7	36.571	.	.
16	3	Lv.	G.	7	3	36.558	.	.	3	G.	Lv.	7	5	36.597	.	.
17	3	Lv.	C.	6	6	36.627	36.627	36.606	.	.	.	.	.	.	36.606	1.0
18	2	S.	C.	8	6	36.593	36.593	36.572	1	C.	S.	8	4	36.510	36.522	36.543
18	2	S.	G.	8	4	36.592	.	.	2	C.	S.	8	6	36.515	.	.
18	.	.	.	.	.	.	.	.	3	C.	S.	9	8	36.552	.	.
18	.	.	.	.	.	.	.	.	1	G.	S.	7	4	36.503	.	.
18	.	.	.	.	.	.	.	.	2	G.	S.	7	6	36.511	.	.
18	.	.	.	.	.	.	.	.	3	G.	S.	8	8	36.541	.	.
19	1	Lv.	C.	6	3	36.649	36.620	36.599	1	C.	Lv.	8	6	36.601	36.581	36.602
19	2	Lv.	C.	8	7	36.619	.	.	3	C.	Lv.	7	5	36.560	.	.
19	1	Lv.	G.	6	4	36.654	.	.	1	G.	Lv.	8	6	36.587	.	.
19	2	Lv.	G.	8	7	36.560	.	.	3	G.	Lv.	8	5	36.552	.	.
20	1	S.	C.	7	6	36.626	36.609	36.588	2	C.	S.	7	7	36.470	36.498	36.519
20	2	S.	C.	3	7	36.598	.	.	3	C.	S.	4	3	36.558	.	.
20	1	S.	G.	7	3	36.597	.	.	2	G.	S.	8	7	36.472	.	.
20	2	S.	G.	3	4	36.565	.	.	3	G.	S.	4	3	36.544	.	.
20	3	S.	G.	8	3	36.656	.	.	.	.	.	.	.	.	.	.
22	.	.	.	.	.	.	.	.	1	G.	Lv.	7	6	36.566	36.555	36.576
22	.	.	.	.	.	.	.	.	2	G.	Lv.	7	2	36.532	.	.
23	2	Lv.	C.	6	4	36.638	36.635	36.614	2	C.	Lv.	7	2	36.532	36.561	36.582
23	3	Lv.	C.	7	3	36.678	.	.	3	C.	Lv.	6	4	36.593	.	.
23	2	Lv.	G.	6	6	36.615	.	.	2	G.	Lv.	8	2	36.521	.	.
23	3	Lv.	G.	7	4	36.574	.	.	3	G.	Lv.	8	4	36.564	.	.
26	.	.	.	.	.	.	.	.	1	G.	S.	7	4	36.531	36.580	36.601
26	.	.	.	.	.	.	.	.	2	G.	S.	7	4	36.629	.	.
27	.	.	.	.	.	.	.	.	1	G.	Lv.	8	4	36.527	36.527	36.548
29	3	S.	G.	8	2	36.533	36.533	36.512	1	G.	S.	8	7	36.640	36.613	36.634
29	.	.	.	.	.	.	.	.	2	G.	S.	8	2	36.622	.	.
29	.	.	.	.	.	.	.	.	3	G.	S.	7	5	36.582	.	.
29	.	.	.	.	.	.	.	.	1	C.	S.	8	7	36.668	.	.
29	.	.	.	.	.	.	.	.	2	C.	S.	6	2	36.616	.	.
29	.	.	.	.	.	.	.	.	3	C.	S.	6	5	36.597	.	.
30	1	Lv.	G.	7	5	36.554	36.560	36.539	1	G.	Lv.	6	4	36.617	36.602	36.623
30	2	Lv.	G.	7	2	36.565	.	.	2	G.	Lv.	8	5	36.597	.	.
30	.	.	.	.	.	.	.	.	3	G.	Lv.	6	5	36.592	.	.
31	1	S.	C.	8	5	36.651	36.660	36.639	1	C.	S.	8	7	36.626	36.616	36.637
31	2	S.	C.	8	7	36.661	.	.	2	C.	S.	7	7	36.603	.	.
31	3	S.	C.	7	3	36.672	.	.	3	C.	S.	7	7	36.619	.	.

TABLE XVI.—Longitudes Based on Plotted Clock Corrections—Continued.

PERIOD II.

Date.		From Signals Received at Eiffel Tower, Paris.								From Signals Received at Radio, Va.								From all Signals.	Wt.
		Series No.		Obsr.		No. Coins.		Longitude for Date.		Series No.		Obsr.		No. Coins.		Longitude for Date.			
Eiffel.	Radio.	Eiffel.	Radio.	Longi- tude 5 ^h 17 ^m +	Ob- served.	Cor- rected for Trans- mis- sion Time.	Eiffel.	Radio.	Eiffel.	Radio.	Longi- tude 5 ^h 17 ^m +	Ob- served.	Cor- rected for Trans- mis- sion Time.						
1914																			
Jan.	21	1	*	S.	6	2	36.874	36.850	36.829	.	.	.	.	.	.	36.829	1.3
	21	2	*	S.	5	4	36.871	.....	.....	.	.	.	.	.....	.....	.....	.....
	21	3	*	S.	7	2	36.786	.....	.....	.	.	.	.	.....	.....	.....	.....
	22	1	G.	Lv.	6	8	36.814	36.790	36.769	1	Lv.	G.	8	3	36.790	36.790	36.811	36.777	1.4
	22	2	G.	Lv.	6	4	36.747	.....	.....	.	.	.	.	.....	.....	.....	.....
	22	1	C.	Lv.	5	8	36.814	.....	.....	.	.	.	.	.....	.....	.....	.....
	22	2	C.	Lv.	6	4	36.785	.....	.....	.	.	.	.	.....	.....	.....	.....
	23	1	G.	S.	8	7	36.832	36.824	36.803	1	S.	C.	7	4	36.788	36.788	36.809	36.804	1.6
	23	2	G.	S.	8	6	36.855	.....	.....	.	.	.	.	.....	.....	.....	.....
	23	3	G.	S.	6	5	36.801	.....	.....	.	.	.	.	.....	.....	.....	.....
	23	1	C.	S.	8	7	36.803	.....	.....	.	.	.	.	.....	.....	.....	.....
	23	2	C.	S.	8	6	36.843	.....	.....	.	.	.	.	.....	.....	.....	.....
	23	3	C.	S.	7	5	36.807	.....	.....	.	.	.	.	.....	.....	.....	.....
	24	1	G.	Lv.	7	3	36.932	36.924	36.903	1	Lv.	G.	6	2	36.790	36.790	36.811	36.877	0.8
	24	1	C.	Lv.	8	3	36.915	.....	.....	.	.	.	.	.....	.....	.....	.....
	26	1	G.	S.	8	7	36.873	36.864	36.843	1	S.	G.	8	5	36.806	36.820	36.841	36.842	1.6
	26	2	G.	S.	7	6	36.860	2	S.	C.	6	6	36.835	
	26	1	C.	S.	7	7	36.860	3	S.	C.	6	3	36.811	
	26	2	C.	S.	7	6	36.861	.....	.....	.	.	.	.	.....	.....	.....	.....
	27	1	C.	Lv.	8	5	36.859	36.871	36.850	.	.	.	.	.....	.....	36.850	1.2
	27	3	C.	Lv.	6	2	36.879	.....	.....	.	.	.	.	.....	.....	.....	.....
	27	1	G.	Lv.	7	5	36.876	.....	.....	.	.	.	.	.....	.....	.....	.....
	27	3	G.	Lv.	8	2	36.877	.....	.....	.	.	.	.	.....	.....	.....	.....
	28	1	G.	S.	7	8	36.836	36.843	36.822	1	S.	G.	7	4	36.822	36.791	36.812	36.819	1.6
	28	2	G.	S.	7	7	36.851	2	S.	C.	8	6	36.783	
	28	3	G.	S.	7	2	36.892	.....	.....	.	.	.	.	.....	.....	.....	.....
	28	1	C.	S.	8	8	36.805	.....	.....	.	.	.	.	.....	.....	.....	.....
	28	2	C.	S.	7	7	36.833	.....	.....	.	.	.	.	.....	.....	.....	.....
	28	3	C.	S.	7	2	36.884	.....	.....	.	.	.	.	.....	.....	.....	.....
	29	1	G.	Lv.	7	7	36.812	36.824	36.803	1	Lv.	G.	8	2	36.787	36.790	36.811	36.806	1.5
	29	1	C.	Lv.	6	7	36.835	3	Lv.	C.	8	4	36.791	
	30	1	G.	S.	7	7	36.860	36.849	36.828	1	S.	G.	8	8	36.795	36.792	36.813	36.820	1.7
	30	2	G.	S.	7	3	36.829	3	S.	G.	8	6	36.818	
	30	3	G.	S.	7	2	36.879	2	S.	C.	7	7	36.758	
	30	1	C.	S.	6	7	36.842	3	S.	C.	8	7	36.813	
	30	2	C.	S.	8	3	36.820	.....	.....	.	.	.	.	.....	.....	.....	.....
	30	3	C.	S.	7	2	36.889	.....	.....	.	.	.	.	.....	.....	.....	.....
	31	1	G.	Lv.	6	7	36.843	36.847	36.826	1	Lv.	G.	8	7	36.763	36.778	36.799	36.809	1.7
	31	2	G.	Lv.	8	6	36.862	2	Lv.	G.	7	6	36.811	
	31	1	C.	Lv.	8	7	36.831	3	Lv.	G.	8	2	36.782	
	31	2	C.	Lv.	8	6	36.848	1	Lv.	C.	8	4	36.755	
	31	2	Lv.	C.	7	5	36.790	
Feb.	2	1	Lv.	G.	8	8	36.831	36.815	36.836	36.836	1.6
	2	2	Lv.	G.	8	8	36.811	
	2	3	Lv.	G.	7	4	36.825	
	2	2	Lv.	C.	8	8	36.802	
	2	3	Lv.	C.	7	6	36.818	
	3	1	G.	S.	4	6	36.834	36.829	36.808	3	S.	C.	8	3	36.810	36.810	36.831	36.817	1.4
	3	2	G.	S.	7	5	36.820	.....	.....	.	.	.	.	.....	.....	.....	.....
	3	1	C.	S.	2	6	36.850	.....	.....	.	.	.	.	.....	.....	.....	.....
	3	2	C.	S.	8	5	36.824	.....	.....	.	.	.	.	.....	.....	.....	.....
	4	1	G.	Lv.	8	6	36.834	36.837	36.816	.	.	.	.	.....	.....	36.816	1.0

* Emission data supplied by French observer.

PERIOD II—Continued.

Date.	From Signals Received at Eiffel Tower, Paris.								From Signals Received at Radio, Va.								From all Signals.	Wt.			
	Series No.	Obsr.		No. Coincs.		Longitude for Date.		Series No.	Eiffel.	Radio.	No. Coincs.		Longitude for Date.								
		Eiffel.	Radio.	Eiffel.	Radio.	Longi- tude 5 ^h 17 ^m +	Ob- served.				Cor- rected for Trans- mis- sion Time.	Eiffel.	Radio.	Longi- tude 5 ^h 17 ^m +	Ob- served.	Cor- rected for Trans- mis- sion Time.					
1914 Feb.	4	1	C.	Lv.	8	6	36.840	s	s
	5	1	G.	S.	8	8	36.810	36.829	36.808	.	.	.	.	.	.	.	.	36.808	1.4	.
	5	2	G.	S.	7	4	36.840	.	.	.	.	.	.	.	.	.	.	.	.	.
	5	3	G.	S.	8	2	36.867	.	.	.	.	.	.	.	.	.	.	.	.	.
	5	1	C.	S.	8	8	36.815	.	.	.	.	.	.	.	.	.	.	.	.	.
	5	2	C.	S.	7	4	36.824	.	.	.	.	.	.	.	.	.	.	.	.	.
	5	3	C.	S.	7	2	36.846	.	.	.	.	.	.	.	.	.	.	.	.	.
	7	1	G.	S.	7	8	36.865	36.858	36.837	1	S.	G.	7	4	36.781	36.805	36.826	36.832	1.5	.	
	7	2	G.	S.	7	2	36.855	.	.	2	S.	C.	8	7	36.817	.	.	.	.	.
	7	1	C.	S.	8	8	36.856	.	.	.	.	.	.	.	.	.	.	.	.	.
	7	2	C.	S.	8	2	36.848	.	.	.	.	.	.	.	.	.	.	.	.	.
	9	1	G.	S.	6	5	36.865	36.855	36.834	1	S.	G.	8	6	36.819	36.806	36.827	36.830	1.6	.	
	9	2	G.	S.	6	4	36.836	.	.	3	S.	G.	8	6	36.793	.	.	.	.	.
	9	.	.	.	.	.	.	.	.	3	S.	C.	8	6	36.806	.	.	.	.	.
	10	1	G.	Lv.	7	7	36.822	36.822	36.801	3	Lv.	G.	8	6	36.818	36.803	36.824	36.814	1.6	.	
	10	2	G.	Lv.	7	3	36.829	.	.	2	Lv.	G.	8	7	36.774	.	.	.	.	.
	10	1	C.	Lv.	7	7	36.813	.	.	3	Lv.	G.	8	7	36.789	.	.	.	.	.
	10	.	.	.	.	.	.	.	.	1	Lv.	C.	8	5	36.818	.	.	.	.	.
	11	.	.	.	.	.	.	.	.	1	S.	G.	6	4	36.813	36.813	36.834	36.834	0.7	.
	14	.	.	.	.	.	.	.	.	1	Lv.	G.	9	6	36.787	36.794	36.815	36.815	1.4	.
	14	.	.	.	.	.	.	.	.	2	Lv.	G.	7	8	36.825	.	.	.	.	.
	14	.	.	.	.	.	.	.	.	3	Lv.	G.	7	4	36.801	.	.	.	.	.
	14	.	.	.	.	.	.	.	.	3	Lv.	C.	7	8	36.778	.	.	.	.	.
	16	1	G.	S.	8	3	36.794	36.823	36.802	1	S.	G.	8	4	36.805	36.802	36.823	36.808	1.5	.	
	16	2	G.	S.	5	6	36.852	.	.	2	S.	G.	8	2	36.796	.	.	.	.	.
	17	1	G.	S.	6	8	36.860	36.843	36.822	1	S.	G.	8	2	36.843	36.805	36.826	36.823	1.6	.	
	17	2	G.	S.	7	5	36.829	.	.	2	S.	G.	6	6	36.786	.	.	.	.	.
	17	3	C.	S.	8	3	36.839	.	.	.	.	.	.	.	.	.	.	.	.	.
	18	1	G.	Lv.	6	6	36.819	36.817	36.796	2	Lv.	G.	8	5	36.761	36.798	36.819	36.805	1.4	.	
	18	2	G.	Lv.	3	2	36.814	.	.	3	Lv.	G.	8	4	36.836	.	.	.	.	.
	19	1	C.	Lv.	8	2	36.862	36.842	36.821	.	.	.	.	.	.	.	.	36.821	1.3	.
	19	2	C.	Lv.	8	8	36.842	.	.	.	.	.	.	.	.	.	.	.	.	.
	19	3	C.	Lv.	8	2	36.821	.	.	.	.	.	.	.	.	.	.	.	.	.
	20	1	G.	S.	7	7	36.811	36.808	36.787	2	S.	G.	8	2	36.778	36.777	36.798	36.788	1.4	.	
	20	2	G.	S.	8	5	36.805	.	.	3	S.	G.	8	2	36.777	.	.	.	.	.
	21	1	C.	Lv.	8	7	36.813	36.799	36.778	.	.	.	.	.	.	.	.	36.778	1.3	.
	21	2	C.	Lv.	7	6	36.785	.	.	.	.	.	.	.	.	.	.	.	.	.
	25	2	G.	Lv.	8	7	36.789	36.789	36.768	2	.	.	.	.	.	.	.	.	.	.
	25	.	.	.	.	.	.	.	.	3	Lv.	G.	7	8	36.732	36.749	36.770	36.769	1.3	.
	26	1	C.	S.	8	3	36.807	36.820	36.799	2	S.	C.	7	7	36.787	36.769	36.790	36.795	1.6	.	
	26	2	C.	S.	8	4	36.834	.	.	3	S.	C.	7	7	36.734	.	.	.	.	.
	27	2	G.	S.	6	3	36.815	36.815	36.794	.	.	.	.	.	.	.	.	36.794	1.0	.
Mar.	5	2	C.	S.	7	4	36.832	36.824	36.803	.	.	.	.	.	.	.	.	36.803	1.3	.
	5	3	C.	S.	6	5	36.816	.	.	.	.	.	.	.	.	.	.	.	.	.

From the data in the preceding tables values of the Washington-Paris longitude have been deduced in the following different ways:

- A. By the use of *observed clock corrections*, using the nights when observations were made at each station and additional nights when independent values could be obtained by interpolated clock corrections.
- B. By the use of *observed clock corrections*, using only the nights when observations were made at each station.
- C. By the use of *observed clock corrections*, using only the common stars observed at each station, thus eliminating the effect of errors in the star places.
- D. By the use of *observed clock corrections*, using only the group nearest the time of the radio work at each station, thus diminishing the effect of errors in the adopted clock rates.
- E. By the use of *plotted clock corrections*, using the same nights as in B, for comparison.
- F. By the use of *plotted clock corrections*, using all the nights when there were radio observations.

As the observing pier at Washington was $0^{\circ}037$ east of the standard meridian of the Naval Observatory and that at Paris was $0^{\circ}093$ east of the standard meridian of the Paris Observatory, the observed values of the longitude as deduced from the preceding tables have been corrected by $-0^{\circ}056$ to reduce to the standard meridians.

The resulting values of the Washington-Paris longitude are as follows:

TABLE XVII.—Summary of Washington-Paris Longitude Values.

	First Period.		Second Period.		All.	
	No. Nights.	Longitude.	No. Nights.	Longitude.	No. Nights.	Longitude.
		$^{\text{h}} \text{ } ^{\text{m}} \text{ } ^{\text{s}} \text{ } ^{\text{s}}$		$^{\text{h}} \text{ } ^{\text{m}} \text{ } ^{\text{s}} \text{ } ^{\text{s}}$		$^{\text{h}} \text{ } ^{\text{m}} \text{ } ^{\text{s}} \text{ } ^{\text{s}}$
A	13	5 17 36.556 \pm 0.0105	14	5 17 36.753 \pm 0.0052	27	5 17 36.654 \pm 0.0055
B	8	36.527 \pm 0.0107	9	36.754 \pm 0.0077	17	36.641 \pm 0.0064
C	7	36.502 \pm 0.0087	8	36.752 \pm 0.0088	15	36.627 \pm 0.0060
D	6	36.528 \pm 0.0121	8	36.726 \pm 0.0093	14	36.627 \pm 0.0071
E	8	36.541 \pm 0.0097	9	36.761 \pm 0.0033	17	36.651 \pm 0.0047
F*	38	36.549 \pm 0.0051	29	36.758 \pm 0.0027	67	36.653 \pm 0.0031

For the elimination of such quantities as personal equations which affect the results of the two periods with opposite signs the direct means of the quantities in the third and fifth columns have been taken to obtain the quantity in the last column and the probable errors assigned in the last column refer to the accidental errors only.

* The values of the longitude from this work as given in the preliminary publication in the *Astronomical Journal* of March 15, 1915, are:

First Period.	Second Period.	All.
$^{\text{h}} \text{ } ^{\text{m}} \text{ } ^{\text{s}}$	$^{\text{h}} \text{ } ^{\text{m}} \text{ } ^{\text{s}}$	$^{\text{h}} \text{ } ^{\text{m}} \text{ } ^{\text{s}}$
5 17 36.558	5 17 36.757	5 17 36.658

The values of the longitude from the independent work of the French observers as announced to the French Academy of Sciences, see *Comptes Rendus d l'Académie des Sciences*, February 14, 1916, are:

First Period.	Second Period.	All.
$^{\text{h}} \text{ } ^{\text{m}} \text{ } ^{\text{s}}$	$^{\text{h}} \text{ } ^{\text{m}} \text{ } ^{\text{s}}$	$^{\text{h}} \text{ } ^{\text{m}} \text{ } ^{\text{s}}$
5 17 36.53	5 17 36.75	5 17 36.67

The value of the longitude, F , based on a consideration of all the data available, is adopted as the result of this determination, namely,

$$\text{Washington-Paris} \dots \overset{\text{h}}{5} \overset{\text{m}}{17} \overset{\text{s}}{36.653} \pm \overset{\text{s}}{0.0031}.$$

SYSTEMATIC DIFFERENCES BETWEEN RESULTS FOR THE TWO PERIODS.

There seem to have been several causes which may have contributed to produce the systematic difference between the results for the two periods. The corrections due to these causes can not in all cases be evaluated with precision. As far as known, these causes and the approximate corrections for their effects are as follows:

	Period I.	Period II.
Diurnal variation in clock rates.....	^s +0.017	^s -0.049
Lag determination at Paris for Period I.....	+0.010	.....
Systematic difference in levels.....	+0.028	-0.028
Variation of longitude due to motion of pole.....	+0.001	-0.009
Difference of personal equation of radio observers.....	+0.029	-0.020
Difference of personal equation of astronomical observers.....	-0.028	+0.008
	+0.048	-0.098

The first three of the above corrections have already been referred to. The fourth is based on the published results for the motion of the pole. The fifth is based on statements made by the radio observers as to their relative times of obtaining coincidences during the preliminary practice when all of them worked together.

The sixth is based on the determination of relative personal equation between LITTELL and HILL, which has already been referred to. The corrections given are the differences between those indicated by this determination and those which had already been applied to reduce to the mean of the two observers at each station.

By applying the above corrections the following values of the Washington-Paris longitude were obtained:

	^h ^m ^s	^s
Period I	5 17 36.597	± 0.0069
Period II	5 17 36.660	± 0.0037
All	5 17 36.639	± 0.0034

Since in this case corrections have been applied for the symmetrical systematic errors, and because of the greater accuracy of the work of the second period, the result from that period was given double weight in deducing the value of the longitude from all of the observations, and each of the probable errors was derived from the residuals from the general mean.

PREVIOUS DETERMINATIONS OF TRANS-ATLANTIC LONGITUDES.

Table XVIII gives a summary of the results of previous trans-Atlantic determinations of longitude tabulated so as to make convenient a comparison between those results and the results of the present determination.

In reducing the longitudes to Washington-Paris, the following adjusted differences of longitude were used:

Greenwich-Paris ¹	h m s s	0 9 20.932 ± 0.014
Washington (Old Observatory)-Cambridge ²	0 23 41.107	
Montreal-Cambridge ²	0 9 47.588	
Washington (New Observatory)-Washington (Old Observatory) ² ...	0 0 3.631	

TABLE XVIII.—Previously Determined Values of Trans-Atlantic Longitudes.

	Washington (Old Observatory)- Greenwich.	Washington (New Observatory)- Paris.
From Eclipses and Occultations:	h m s s	h m s
WALKER ³ , 1843.....	5 8 11.14	5 17 35.70
PEIRCE ³ , 1851.....	11.57	36.13
PEIRCE ³ , 1839.....	11.45 ± 0.3	36.01
PEIRCE ³ , 1856-1861.....	13.13	37.69
From Moon Culminations:		
WALKER ³ , 1843-1845.....	5 8 10.01	5 17 34.57
LOOMIS ³ , 1838-1844.....	9.3	33.86
GILLISS ³ , 1838-1842.....	10.04	34.60
WALKER ³ , 1845.....	9.60	34.16
NEWCOMB ³ , 1846-1860.....	11.6 ± 0.4	36.16
NEWCOMB ³ , 1862-1863.....	9.8	34.36
From Chronometers:		
Miscellaneous ³ , 1849.....	5 8 12.46	5 17 37.02
BOND ³ , 1849.....	11.14	35.70
WALKER ³ , 1849.....	12.00	36.56
BOND ³ , 1849.....	12.20 ± 0.20	36.76
BOND ³ , 1855.....	13.43 ± 0.19	37.99
	Cambridge, Mass.- Greenwich.	
By Cable:		
GOULD ⁴ , 1866.....	4 44 30.891 ± 0.090	5 17 36.56
DEAN ⁴ , 1870.....	31.065 ± 0.056	36.73
HILGARD ⁴ , 1872.....	31.016 ± 0.041	.....
	Cambridge, Mass.- Paris.	
HILGARD ⁴ , 1872.....	4 53 51.951 ± 0.051	5 17 36.69
	Montreal, Canada- Greenwich.	
Greenwich Observatory-McGill University ⁵ , 1892...	4 54 18.62 ± 0.024	5 17 36.70

THE WASHINGTON-GREENWICH LONGITUDE.

The Washington-Paris longitude given in the American Ephemeris and Nautical Almanac from 1901 to 1915, 5^h 17^m 36^s.75, is correlated with the Paris-Greenwich longitude, 0^h 9^m 20^s.97, which has been superseded by the value given

¹ Astronomische Nachrichten No. 3993, p. 157.

² U. S. Coast and Geodetic Survey Report, 1897, p. 253-260.

³ U. S. Coast and Geodetic Survey Report, 1867, pp. 59-60.

⁴ U. S. Coast and Geodetic Survey Reports, 1872, p. 234; 1884, p. 429; 1897, pp. 241, 247, 248.

⁵ Royal Observatory, Greenwich—Determination of Longitude, 1888-1902, p. 124.

above, corresponding to a Washington-Paris longitude of $5^h 17^m 36^s.71$. This depends on the adjustment of the Washington-Greenwich longitude made by SCHOTT in 1897, which gave for that longitude $5^h 8^m 15^s.78 \pm 0^s.05$.¹ SCHOTT's value was based largely upon the result of the 1892 cable determination of the difference of longitude between Montreal, Canada, and Greenwich, for the result of which only the preliminary value was available when the adjustment was made. The definitive value gave a correction to the preliminary value of $-0^s.05$, indicating that SCHOTT's value of the Washington-Greenwich longitude is somewhat too large. Assuming the value given above for the Greenwich-Paris longitude, and combining with it the Washington-Paris longitude resulting from the present determination, the following value is obtained for

$$\text{Washington-Greenwich} \dots 5^h 8^m 15.721 \pm 0.014.$$

LONGITUDE DETERMINATIONS BY AMERICAN OBSERVATORIES.

A number of American observatories made arrangements to receive the time signals which were emitted from the Radio station for the Washington-Paris longitude work and to utilize them in determining their longitudes from Washington. The results of these determinations that have been communicated to the Naval Observatory for publication are given below.

Longitudes from Washington.

Observatory.	Reference Point.	Astronomical Observer.	Radio Observer.	Reductions by—	No. Nights.	Longitude from Washington.
CASE..... Cleveland, O.	Transit pier.....	D. T. WILSON.....	DAYTON C. MILLER... L. G. MCCLELLAN.	L. G. MCCLELLAN...	3	$h\ m\ s\ s$ $+0\ 18\ 10.462 \pm 0.014$
COLUMBIA UNIVERSITY... New York, N. Y.	do.....	G. D. FISH.....	HAROLD JACOBY..... G. D. FISH.	G. D. FISH.....	3	$-0\ 12\ 25.302 \pm 0.003$
CREIGHTON UNIVERSITY... Omaha, Neb.	do.....	WM. F. RIGGE.....	WM. F. RIGGE.....	WM. F. RIGGE.....	4	$+1\ 15\ 30.90$
DRAKE UNIVERSITY... Des Moines, Iowa.	do.....	D. W. MOREHOUSE... S. J. A. WIVVAT.	D. W. MOREHOUSE...	MISS COZINE..... MISS FARRIS.	8	$+1\ 6\ 20.601 \pm 0.034$
ELGIN..... Elgin, Ill.	do.....	F. D. URIE.....	F. D. URIE.....	F. D. URIE.....	12	$+0\ 44\ 49.672 \pm 0.024$
ILLINOIS WATCH CO.... Springfield, Ill.	do.....	GEO. F. JOHNSON..	GEO. F. JOHNSON...	GEO. F. JOHNSON...	4	$+0\ 50\ 18.42 \pm 0.085$
FLOWER, UNIVERSITY... OF PENNSYLVANIA... Philadelphia, Pa.	Center of dome of 18-inch equa- torial.	ERIC DOOLITTLE....	CHAS. M. DOOLITTLE.	ERIC DOOLITTLE....	9	$-0\ 7\ 8.830 \pm 0.015$

¹ U. S. Coast and Geodetic Survey Report, 1897, p. 253-260.

3 2044 079 950 432

This book should be returned to
the Library on or before the last date
stamped below.

A fine of five cents a day is incurred
by retaining it beyond the specified
time.

Please return promptly.

